AMERICAN
GAS JOURNAL
Established 1859 Pioneer of the Gas Industry

VOL. 126, No. 13
WHOLE No. 3263

NEW YORK, SATURDAY, MARCH 26, 1927.

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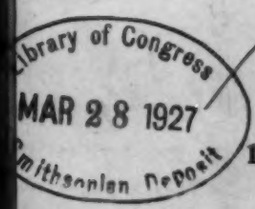

Sprague Standard Meters represent
over twenty years of progress

Write for Bulletin No. 10

Sprague Meter Company
Bridgeport Conn.

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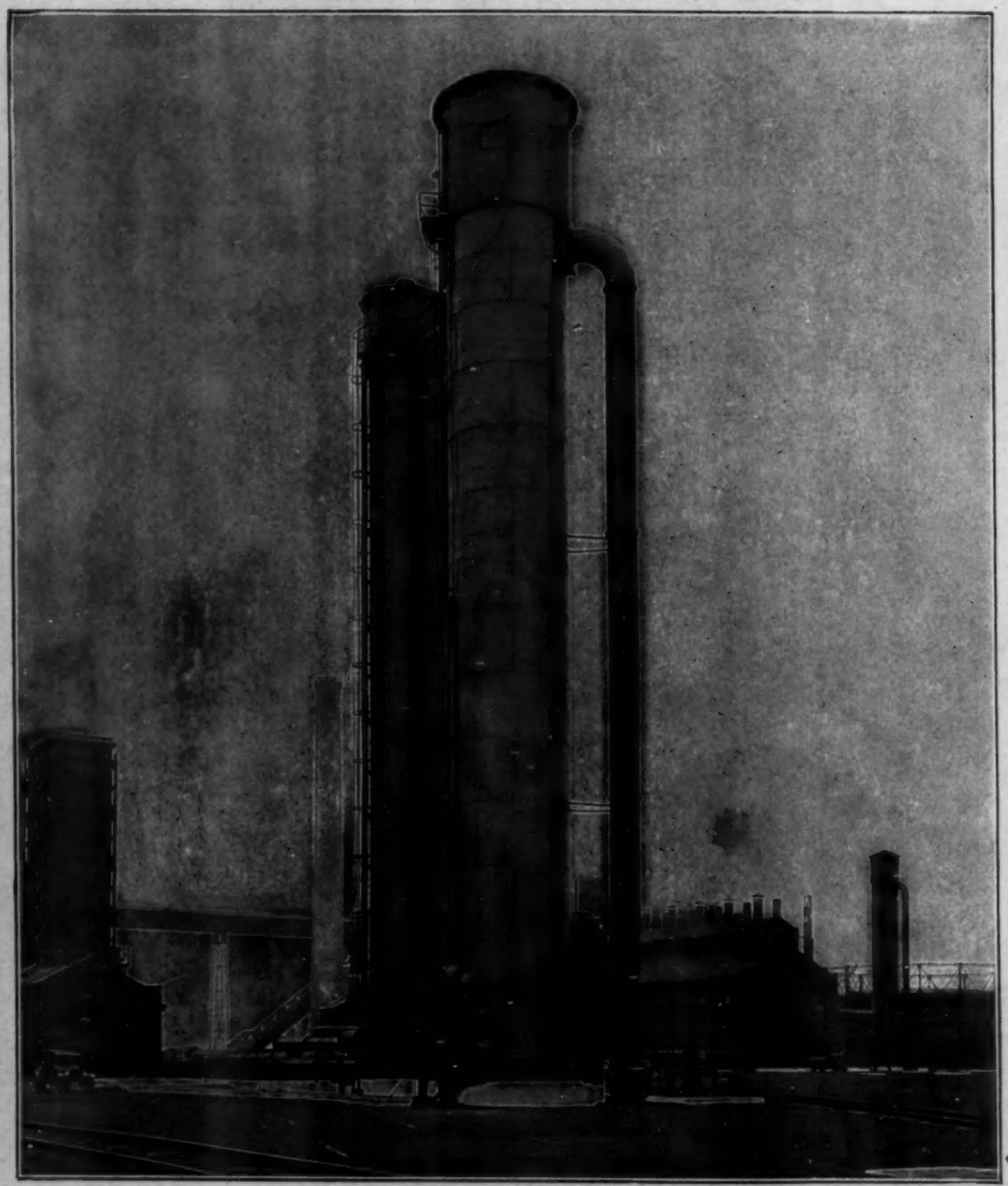
NAPHTHALENE REMOVAL PLANTS—(Patented)



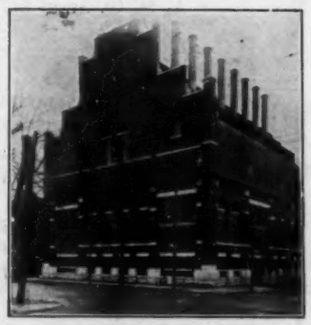
NAPHTHALENE INSTALLATION AT CHICAGO

The WESTERN GAS
CONSTRUCTION COMPANY

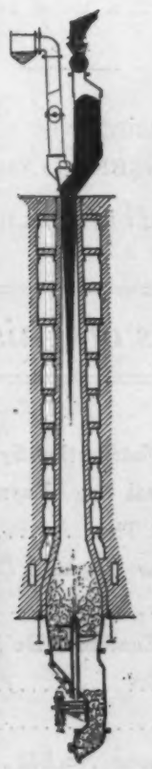
Subsidiary of The Koppers Company

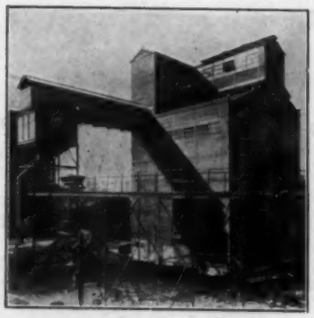
FORT WAYNE, IND.

GLOVER-WEST
Vertical Retorts

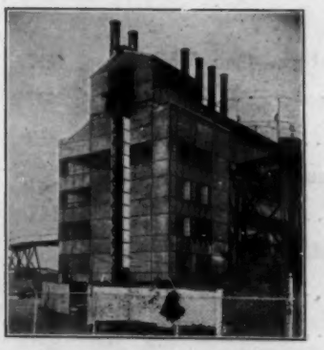


Toronto, Ont.
5,000,000 cu. ft. per day





Fargo, N. D.
800,000 cu. ft. per day



Portland, Me., 2nd Plant
750,000 cu. ft. per day

Fall River, Mass.
1,600,000 cu. ft. per day

Plants *Completed* in 1926

Also Completed—Stamford, Conn., 1,100,000 cu ft.; Buenos Aires, 3,500,000 cu. ft.

Under Construction

Springfield, Mass.	2,800,000 cu. ft.	Santiago, Chile	3,000,000 cu. ft.
Toronto, Ont.	600,000 cu. ft.	Pawtucket, R. I.	1,060,000 cu. ft.
		Faribault, Minn.	400,000 cu. ft.

WEST GAS IMPROVEMENT CO.

COMPANY MEMBER OF AMERICAN GAS ASSOCIATION

Builders of Coal Gas Plants

441 Lexington Ave. New York.

American Gas Journal

SIXTY-SEVENTH YEAR

Published Weekly by American Gas Light Journal, Inc., 53 Park Place, New York, N. Y.

S. G. KRAKE, Pres. and Treas. C. S. MYERS, Vice-Pres. A. M. GLEASON, Sec'y

STANTON G. KRAKE, Managing Editor HENRY M. RILEY, Editor

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"MEMBER OF THE AUDIT BUREAU OF CIRCULATIONS"

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AMERICAN GAS JOURNAL, March 26, 1927. Vol. 126. No. 13. Published weekly by American Gas Light Journal, Inc., New York, N. Y. Entered as second-class matter Jan. 9, 1917, at the post-office at New York, N. Y., under the Act of March 3, 1879.

AMERICAN
GAS JOURNAL
Established 1859— Pioneer of the Gas Industry

Vol. 126. No. 13. **NEW YORK, MARCH 26, 1927.** **Whole No. 3625.**

What Is the Capacity of a Distribution System?

What happened when output was greatly increased

Geo. Wehrle

Superintendent Gas Department, Public Service Company of Colorado, Denver Colorado

THE factors that determine the sizes of mains required for a distribution system are the volume of gas the mains must carry under maximum peak load conditions with a given pressure loss at a particular time, plus a reasonable allowance for future increase in load. What the correct pressure drop should be and what constitutes a reasonable allowance for future increased load are problems which often involve expenditures of many thousands of dollars in investment and capital charges.

We have had occasion recently to study the performance of distribution systems in several cities where natural gas had been substituted for manufactured gas with a resultant large increase in load. The result has been interesting although not at all remarkable nor abnormal in any respect. It has tended simply to show that the capacity of the ordinary distribution system is ofttimes greatly under-rated and that rule of thumb methods do not apply in the correct design of a proper system.

Experience in Fort Collins

In the City of Fort Collins, Colorado, we acquired a manufactured gas plant which we operated until a year ago when natural gas was turned into the mains. This city has a population of 15,000 and gas is supplied to 2,200 customers. The distribution system consists of the following:

648 ft. of 8-in. pipe, 18,998 ft. of 6-in. pipe, 66,627 ft. of 4-in. pipe, 40,288 ft. of 3-in. pipe, 10,067 ft. of 2-in. pipe, 1,305 ft. of 1½-in. pipe, total 137,933 ft.

The average size of main is 3.8 inches in diameter, which is smaller than the average in the ordinary distribution system where a minimum size of 4-in. pipe is used, yet the system was shown to have been designed for a capacity greatly in excess of justification.

The maximum daily peak for manufactured gas was 200,000 cu. ft. with a peak hour of 20,000 cu. ft.

A maximum pressure of 8-in. water column was required to maintain a maximum of 4 inches at the extremities of the system. When natural gas was put in, two regulators were installed at the plant location; one by the pipe line company to reduce pressures to 25 pounds and one by our company to reduce from 25 pounds to inches of water. No intermediate high pressure mains were installed nor has any change in feeder mains as yet been made. Pressures at the outlet of the low pressure regulator are controlled by the requirement at the extremities of the system of 4-in. water column. Individual regulators were installed on all services.

Increase in Load Rapid

The increase in load has been quite rapid reaching a peak, so far, on December 14, 1926, when the daily output was 2,000,000 cu. ft. and the peak hourly send-out 100,000 cu. ft. The maximum pressure required during the peak hour was 50-in. water column at the plant regulator. The peak days' output was ten times that of the maximum daily output of manufactured gas while the peak hour was five times as great, and we have not reached the limit of capacity of this system as yet since outputs will undoubtedly exceed the peaks so far experienced before any improvement in the system will be installed.

This has caused us to wonder what maximum capacity the designers of the Fort Collins distribution system had in mind at the time they laid out the present system some twenty years ago. We know that many thousands of dollars have been paid out in interest charges on investment that has not been needed for twenty years. Is it not possible that many other gas companies are in the same position, for the Fort Collins system was not a departure from so-called standard practice?

Here was a city of less than 10,000 population twenty years ago. A city dependent for its growth and prosperity upon an argricultural district. It was a college town with few if any industries. One would expect its growth to be entirely normal. It is unlikely that anyone had the vaguest idea that gas would ever be used for house heating. Its prime purpose was as a domestic fuel and our guess would be that the wildest fancy at that time did not go beyond the general use of gas for that purpose which meant an average use of probably 30,000 cu. ft. annually by a customer, and one customer for each five of population. Yet a system was installed for

distributing gas that has successfully and efficiently handled 2,000,000 cu. ft. in 24 hours and has handled as much gas in one hour as was handled ten years after the system was installed in one day.

Suppose natural gas had not been discovered near this city and that the use of gas had remained under the conditions as existing twenty years ago and which still prevailed one year ago. We will pass over the increased use, or normal growth, of gas during this past twenty year period and start with conditions as we found them last year. For the twelve months ending November 30, 1925, the sendout was 57,666,000 cu. ft., or an average of 158,000 cu. ft. per day. The peak daily sendout was 200,000 cu. ft. and the peak hour 20,000 cu. ft. The number of customers was 2,200, or one for each 6.8 population.

Test of Distribution

Obviously the test of distribution capacity is the peak hourly requirement and if we assume that the ratio of peak hourly requirement to average daily output would remain the same as in 1925 and that the output would be increased normally at the rate of 5 per cent per year, we find that this system, that has already been in use twenty years, would still be functioning without any improvement in feeder capacity thirty-three years from now, at which time, if all conditions remained the same, the population of the city would be 75,000, the number of customers would be 11,000, the average daily output 790,000 cu. ft. and the peak hourly output 100,000 cu. ft. We just wonder if the original designers were looking fifty years into the future, and if so, why they did so. Certainly they did not have in mind the possibilities of a discovery of natural gas and its subsequent use in the city, if they had, no doubt we would have 16-in. mains where the 8-in. now are and 12-in. mains where the 6-in. are and all others in proportion.

We do not believe that the original owners of this property had any intention of spending any more money for a distribution system than they thought they had to. We know them to have been shrewd business men. True they depended upon the experience of standard practice in making their investment and the mistakes that they have made may be a very common one. We shall attempt to show what this mistake would have cost if natural gas had not been discovered.

Calculations of Interest

Again let us start at the time natural gas was turned on just one year ago when the system was handling a peak hourly output of 20,000 cu. ft. The reproduction cost of the system at that time was approximately $140,000 which, let us assume, was at the very least $40,000 more than was needed for a distribution system of adequate capacity to handle the load and allow for a reasonable future growth. We have shown that if the load increased at the rate of 5 per cent per year that the same mains plus supply mains for new customers would handle the load for thirty-three years at which time the peak hourly output would be 100,000 cu. ft. which this system has actually handled. Regulators could have been installed on the services as the load required increased pressure to be used. If we assume that $10,000 would have been required for regulators on the present mains to make them workable under increased pressure we still have $30,000 of excess investment to pay interest on for thirty-three years. The compound interest on this sum at 6 per cent is $208,141.73. In addition to the interest there would be paid excess taxes on $30,000 and depreciation loss on a like amount.

We have a similar situation in Cheyenne, Wyoming, where we acquired a manufactured gas plant several years ago and where natural gas was turned on six months ago. At the time natural gas was turned on the peak daily output had been 160,000 cu. ft. and the peak hour 16,000 cu. ft. We have already sent 800,000 cu. ft. through these mains in a 24-hour period and have handled a peak hour of approximately 40,000 cu. ft. We haven't anywhere near reached the capacity of this system as yet since the size of the mains and general design is about the same as in the Fort Collins system.

When we acquired the Fort Collins and Cheyenne properties the minimum size of main pipe being used as supply mains was 3-in. and a great many supply mains of 4-in. size had been installed. We immediately adopted our standard practice of installing all 2-in. supply mains for domestic use which will be continued under the natural gas program where we expect to ultimately obtain from 75 per cent to 90 per cent of all residence heating in these cities. On the average a customer using gas for residence heating, as well as domestic purposes, will increase his use of gas per year at least fifteen times over the amount he formerly used for cooking and water heating. These supply mains will, of course, be adequately reinforced by transmission and feeder mains of proper size but the largest proportion of all mains comprising the distribution system will always be of 2-in. size even when supplying 90 per cent of all residence heating with natural gas.

Minimum Sizes of Mains

We have not attempted in the foregoing illustrations to answer the question "What is the capacity of a distribution system?" by theorizing. As a matter of fact it would require a mass of most intricate calculations. We are convinced in our own minds by actual experience that 2-in. supply mains are larger than is needed for the ordinary domestic loads as far as the conductivity of the pipe is concerned. We have, however, adopted 2-in. mains as a minimum size because this is a more economical size per unit of capacity than are pipes of a smaller size. Anyone who will attempt to find out what the capacity of an existing distribution system is by actually trying it out will no doubt be agreeably surprised, as we know we have been in numerous properties.

As distribution standards now exist the capacity of our present systems should cause us less concern than anything else in the gas business. And this is true though we double and treble our leads or even increase them ten times over.

House Heating with Natural Gas

As experienced in Fort Collins, Colorado

Raymond E. Forsythe

Public Service Company of Colorado

NATURAL gas was first introduced in Fort Collins December 11, 1925, and since that time we have been successful in installing approximately 600 gas-fired installations. Most of these installations have been conversions, being chiefly due to a greater percentage of the heating systems being new. These conversions which have been installed are working very satisfactory and their cost of operation compares very favorably with that of coal.

A Home Rendered More Livable by Gas Heating

The percentage of high bills are comparatively small compared to the amount of installations that we have made. Most of these complaints have been traced to existing local conditions in the home. In some few cases we have found it necessary to make some changes to remedy the situation, since local conditions vary so. We have found that in order to obtain the most economical results it becomes necessary to give each individual installation its own particular adjustment.

Upon receiving a call from the customer, or in making our calls, regarding house heating in the home, we first see that they are well acquainted with the rate, and the basis upon which such an installation may be purchased. After this has been done we proceed to secure all necessary information and data pertaining to such an installation and its cost of operation, as near as we are able to estimate.

Importance of Building's Construction

There are many quick methods of estimating heat losses, most of which prove to be very accurate. However, in measuring the home, special notice should be taken concerning the construction of the building, since in poorly constructed buildings the heat loss becomes much greater. Gas, with its high heat value, is more dependable than any other kind of fuel, and will prove its real value and efficiency in any installation if it is properly installed.

Numerous types of gas-fired central house heating equipment have been offered to the public, and considerable reluctance on the part of the gas companies to encourage this class of business has been in evidence.

We find that in some cases the public considers gas house heating a luxury, yet it is becoming more prominent in its use over all other methods of heating. Such use is a challenge to gas companies, and every measure possible should be adopted to install the best of house heating equipment.

In a great many cities where natural gas is used, it becomes necessary for gas companies to specialize more or less on gas conversions. In most cases where gas is being introduced in the homes a great many heating plants are found to be new, and a new gas-fired heating system would be too costly in their estimation.

Where steam or hot water installations are made, in all probability more than sufficient radiation has been considered, and we have but little trouble as the result. However, on the other hand, where hot air installations have been made, we find a great many changes necessary before submitting an estimate on a gas-fired installation. If we are careful

A Hotel Divorces Itself From Ash Nuisance

in making this survey we will find any change that may be corrected at the time, relating to the construction and installation of the heating plant. In doing this we have revamped the old heating system in the home and are able to produce more satisfactory results.

In most cases we find furnaces to have sufficient rating to take care of the load, yet in making this installation insufficient capacity was allowed to take

care of the cold air return. If it is found that the total in square inches in the cold air return is not equivalent to that of the send-out of the hot air lines, the capacity of the furnace will not be utilized. Oftentimes numerous changes may be made to take care of these conditions, with but very little additional cost to the customer, and will render a much greater service.

It is well to bear in mind when considering a new gas-fired installation, that the coal and gas furnace methods of rating are different. Knowing these conditions to exist we should be thoroughly convinced of our estimations before submitting them to the customers, allowing ample radiation to take care of the load. A great many cases are found to be underrated where competitive figures were submitted at the time of installation. If a gas-fired conversion or gas-fired boiler is installed and insufficient radiation is allowed, we will not render a satisfactory service, but will make the cost prohibitive for the amount of service they have obtained.

In Fort Collins we are now using for house heating purposes the Denver installations as described in the A. G. A. house heating reference book.

The Denver Method

This method of installation was worked out by the Denver Utilization Department and consists of tee burners placed at the bottom of the furnace, all grates being removed, giving the total height of the furnace for gas travel.

For square boilers the straight tee burners are used, and for round boilers and furnaces the circular tee burners, built in 12", 15" and 18" lengths. In the average gas installation we find three of these burners to be sufficient to meet the demand.

For larger installations such as apartment buildings, block buildings and hotels, a different type of burner is considered, since the volume of gas to be consumed becomes much greater.

In the larger class of installations we find the Mettler or Schrader burners to give very adequate service. The secondary air adjustments on these burners are such that regardless of the volume of gas required, they can be properly adjusted to give sufficient secondary air for proper combustion. If combustion is properly made on an installation of this kind, the cost of operation will not be prohibitive. Local conditions will determine or assist in bringing about this condition. The check drafts should be set so as not to form too strong a draft through the flue. Where this is done, more or adequate secondary air may be used to make a proper combustion, with but a small consumption, as all gasses will be burned before going to the flue. We find that in order to have a perfect combustion the flame must be a rich orange color. This may be determined by failing to find accumulations of soot or floating gasses in the furnace.

Baffling

After the burners have been properly situated in the furnace, we arrange the baffling so as to throw the gas flame outward. This gives us heat where it is most needed. By lengthening the gas travel we leave only sufficient air travel to carry off the burned gasses. These methods of conversions are used in steam, water and hot air furnaces, giving us an efficiency of approximately 60 per cent, depending upon the type of furnace converted. In all probability this is done through special effort in properly placing the baffling, which comes in all sizes and shapes so as to make a satisfactory installation.

After completing the conversion we then take into consideration the method of control. In homes that use steam or vapor, we find that often the pressure will rise in the boiler before the temperature of the room calls for the thermostat to act. In such instances it is necessary to use a hydrostat.

Oftentimes we find it convenient to install a low water fuel cut-off valve and fuel governor to take care of this situation. This gives a perfectly safe and entirely automatic heating system.

Water Feed Control Not Dependable

The water feed control has been tried out but without favorable results; that is in a place where it is entirely safe and dependable, which gives us numerous service calls, and of which we could not recom-

Data on Some Typical Installations

Buildings: Class	Type	Number of Rooms or Floors	Hourly B.t.u. Loss	Aver. Winter Temp.	Types of Heating Plant	Type of Installation	Sq. Ft. of Radiation	Degree Days Per Yr.	—Demand— Cu.Ft. Per Hr.	—Demand— Yearly Cost	Customer Chg. Per Yr.	Season's Consumption Per Year M. Cu.Ft.	Season's Consumption Per Year Cost	Total Yearly Revenue	Cost Per Cu.Ft.	Domestic M. Cu.Ft. Per Yr.
Tel. Co.	Brick	2-story	323,000	38.4	Steam	Conv.	1,340	6,850	300	$72.00	$9.00	1,187	$317.00	$359.60	30+	0
Block Bldg.	Brick	2-story	296,000	38.4	Steam	Conv.	1,234	6,850	500	120.00	9.00	1,069	306.40	435.40	40+	180M
Garage	Brick	1-story	470,000	38.4	Steam	Conv.	2,000	6,850	1,100	264.00	9.00	1,835	471.00	744.00	41+	360M
Block Bldg.	Brick	2-story	306,540	38.4	Steam	Conv.	1,527	6,850	500	120.00	9.00	1,346	338.80	467.80	34+	0
Hotel	Brick	3-story	388,624	38.4	Steam	Conv.	1,600	6,850	600	124.00	9.00	1,488	537.00	690.00	48+	180M
Garage	Brick	1-story	248,640	38.4	Steam	Conv.	1,036	6,850	400	196.00	9.00	943	275.60	371.60	39+	24M
Hotel	Brick	3-story	960,000	38.4	Steam	Conv.	4,000	6,850	2,000	480.00	9.00	5,514	1,196.20	1,685.20	30+	2,400M
Block Bldg.	Brick	2-story	284,200	38.4	Steam	Conv.	1,180	6,850	500	120.00	9.00	1,128	327.60	456.60	40+	240M
Masonic Temple	Brick	2-story	360,000	38.4	Steam	Conv.	1,500	6,850	500	120.00	9.00	1,315	335.60	464.60	35+	24M
Dept. Store	Brick	2-story	480,000	38.4	Steam	Conv.	2,000	6,850	500	120.00	9.00	1,764	422.80	551.80	31+	0
Court House	Brick	3-story	600,000	38.4	Steam	Conv.	2,500	6,850	1,500	360.00	9.00	2,361½	607.50	976.52	39+	290M
Bakery	Brick	1-story	.....	38.4	Steam	Conv.	....	6,850	1,500	360.00	9.00	4,120	1,186.32	1,655.32	29+	0
Drug Store	Brick	2-story	240,000	38.4	Steam	Conv.	1,000	6,850	500	120.00	9.00	906	255.60	384.60	42+	24M
Residence	Brick	1-story	91,400	38.4	H. A.	Conv.	380	6,850	120	28.80	9.00	336	106.80	144.60	43+	36M
Residence	Frame	2-story	96,000	38.4	H. A.	Conv.	400	6,850	120	28.80	9.00	413	127.92	165.32	42+	60M
Residence	Brick	1-story	175,000	38.4	Water	G. F.	727	6,850	180	43.20	9.00	596	182.04	248.94	41+	120M
Residence	Frame	2-story	94,800	38.4	Steam	Conv.	395	6,850	150	36.00	9.00	444	140.20	197.20	44+	96M
Residence	Frame	1-story	32,000	38.4	H. A.	Conv.	133	6,850	90	21.60	9.00	142	53.60	84.20	59+	24M
Residence	Stone	2-story	306,840	38.4	Steam	Conv.	1,266	6,850	120	28.80	9.00	1,237	338.56	385.76	31+	120M

mend for practical use. If such a dependable water control could be brought out much of our difficulties would be replaced through its use.

After we have our conversions of gas-fired boilers working satisfactorily we make numerous flue gas analyses to determine our percentage of combustion. Of these tests we find the following results:

Excess CO shows poor condition.

Excess CO_2 shows good condition.

Sample flue gas analysis which shows good combustion: 11½ per cent CO_2, 7 per cent O, no CO, and 80 per cent N.

Fair test: 9 per cent CO_2, 10 per cent O, ½ per cent CO, and 80½ per cent N.

Excess in O, low in CO_2 shows leak in setting.

Excess in CO shows incomplete combustion due to poor draft or small flue travel.

Gas Rates

Natural gas is sold in Fort Collins on the Doherty three part rate. The change from the old rate and manufacturing gas was made December 11, 1925, and the rate consists of commodity charge, reservation charge and customer charge.

Rate schedule:

A commodity charge for gas metered per month:

First 5,000 cu. ft., per 1,000 cu. ft.	$0.40
Next 15,000 cu. ft., per 1,000 cu. ft.	.35
Next 30,000 cu. ft., per 1,000 cu. ft.	.30
Next 50,000 cu. ft., per 1,000 cu. ft.	.25
In excess of 100,000 cu. ft., per 1,000 cu. ft.	.20

Plus

A reservation charge:

Per cu. ft. of maximum hourly requirement per year, $0.24 (to be paid in twelve equal monthly installments).

Plus

A customer charge:

Per meter per year, $9.00 (to be paid in twelve equal monthly installments).

The cost of coal from nearby mines is very low, making severe competition with gas as a fuel. However, since introducing natural gas, in one year's time 25 per cent of the customers were using gas for all purposes in their homes. December 14, 1925, 96,000 cu. ft. of gas were used. One year later the send-out was 1,996,000 cu. ft., an increase of 1,979 per cent. This excellent increase is due to the activities of the New Business Department, with the aid of proper gas installations and service. In carrying out these policies we have been able to bring the cost of gas down to a comparative basis with that of coal without making an allowance for janitor services.

Gas Versus Coal

If we could but realize the tremendous loss caused annually through coal being used as a fuel, we would be even more anxious to promote the use of gas as fuel whenever possible.

Statistics prove to us that smoke alone, from coal fires, causes a damage annually amounting to approximately $500,000,000, which is mostly due to destruction of merchandise, defacing of buildings, coloring or tarnishing of metals, increased labor, cost of housekeeping, interior decorations, and injury to human life through improper combustion.

While it is true that we have abundance of natural fuel, it is well to bear in mind that through conservative measures we are able to manufacture from this fuel a number of by-products, such as gas, coke, tar, benzine, etc. If these solid fuels are used, these products are simply burned for their fuel value without regard to their real significance. Knowing these conditions to exist, we should promote every feasible means to advance the progress of gas as a fuel for use in the home above all other fuels.

The foundation of this advancement will begin with the sale of appliances in the home, or for industrial purposes. However, we should bear in mind that with every appliance sold we have to render a service that is going to further this aim, and cause gas to be used in a much greater volume.

Humidification

In speaking of humidification, we refer to the amount of moisture (water vapor) mixed with the air to make living conditions sanitary in the home. A greater percentage of the homes heated today, regardless of the kind of fuel used, overlook the necessity of humidifying the air. It is the duty of the engineer figuring a gas-fired installation to point out the importance of proper humidification to the customer, and promote better living conditions in the home. In doing this you have proven to the customer your ability as a heating expert, showing them a better way to obtain a more satisfactory service from their present heating plant.

When the temperature in the home corresponds to saturation, it is known as the "dew point." Air which contains any weight of water vapor can always be cooled until the dew point is reached. If at any time the air reaches a given temperature, containing one-half of the weight of water vapor (representing saturation), it is said to have humidity of 50 per cent.

Under normal conditions we find that the relative humidity in the home should range from 35 per cent to 75 per cent to maintain the greatest efficiency. Where hot air furnaces are used in the home, they are well adapted to humidification, by various devices, charging as they do, fresh air into the rooms. However, customers are negligent in their operation of these heating plants, in supplying their furnaces with sufficient water to bring about this moisture of humidification.

Gas companies at the time of making a gas heating installation should avail themselves of every available opportunity to promote the idea of humidification as a sanitary measure in the home.

Thermostat

In promoting economy and service in the home where gas is used as a fuel, we have been able to

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Laying a Pipe Line Against Time

Service operator and oxwelding make it possible for gas light company to meet city's ultimatum

AFTER a fight with time which reads like an adventure novel, with conditions as adverse as any villain could wish to make them, 600 ft. of gas pipe line were recently laid in the city of Worcester, Mass. The local gas company planned to circle the city with a trunk line 12 in. in diameter and 30 miles long. After investigating the success of other gas companies with welded pipe, the officials were convinced that this line, to insure satisfactory service, should be oxwelded.

Upper end of line late Wednesday morning. Note paving gang in background.

Construction was not expected to begin for several months. But the city officials had other plans. They decided to proceed with a major paving project, which at one point covered 600 feet of pipe line right of way. After completion of this paving project local ordinances prevented the gas company from tearing up the street for new construction for ten years. This, of course, meant that one short stretch of the proposed new trunk line had to be completed before paving this particular stretch got under way to block their project.

Due to a combination of circumstances, the decision to lay this part of the line immediately was made only four days before the paving crew would enter the area. With steam rollers in action less than two city blocks away from the pipe trench, the two welders would have to work fast if they were to have their job finished and avoid expensive interference with the other contractor. So a service operator was called in to organize the job for speedy completion.

On the first day is was necessary to construct a welded tee. No patterns were available, which slowed down the work greatly. This job and the instruction of welders who had never done pipe work of this nature occupied the first day. The next morning, the second tee required was fabricated from the pattern prepared for the first, and late in the afternoon the small crew of two men was ready to go out on the line and start the actual welding of the pipe. Under direction of the service operator the 20-foot lengths of pipe had been strung out on skids over the trench for joining.

A conversation with the paving boss brought out the information that the street crew expected to be down as far as the line on Thursday evening and that they did not intend to be kept waiting. With two days in which to weld and test practically the whole 600 feet, it was evident not only that it would be necessary to do some speedy work, but that each weld was a good one. There would be no time left to reweld joints proved defective under test. Naturally the service operator's assistance proved invaluable in coaching the operators to produce best results under this combination of circumstances.

One of the joints

The gas company's operators (already skilled in miscellaneous repair work) picked up the knack of pipe welding readily and on Wednesday the line went ahead fast, both men keeping at it until almost ten that night. Between them, they completed the major portion of the joints that day, and, to be ready for the pavers on Friday morning, there remained for the following day the welding of three additional joints and two tie-ins, the lowering of the 600 foot line, testing and back filling. The paving crew, now less than a block away, was advancing rapidly.

Preparing to lower the line Thursday morning

Everything went well the following morning and the line was finally ready for test. While the pressure was being built up, a temporary plug at one end of the line blew out and delayed the job until it could be replaced. When finally tested, only four pin holes were discovered in the 30-odd joints—a good figure considering the relative inexperience of the men and

the tremendous drive they were under. These were quickly repaired, and preparations were then begun for lowering the line.

One end was lowered first with a crane, the rest of the line being controlled by rope slings on wooden horses, two of which gave way under the strain during the lowering, and gave the line an unexpected test for strength and flexibility. At 5 o'clock the paving gang had worked right down to the upper end of the trench and was ready to start on the portion of the street where the pipe was being laid the first thing the next morning.

Without further mishap the pipe was put into the trench and at nine o'clock Thursday evening, after a second test had proved the line absolutely tight, the ditch crew started filling up the end of the trench where the paving crew had stopped.

With oxwelding the job was done on time.—"Oxy-Acetylene Tips."

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GAS SALES DIVISION OF NEW ENGLAND GAS ASSOCIATION HOLDS MARCH MEETING

The March meeting of the Gas Sales Division of the New England Gas Association was held at the Boston City Club on Friday, March 11, 1927. The subject of the meeting was Water Heating and 210 members and guests were in attendance to listen to a very interesting paper by Jesse L. Johnson, sales manager of the Providence Gas Company on the subject of "What About This Water Heating Business." The points brought out in Mr. Johnson's paper and the discussion which followed the presenting of the paper proved to be of considerable value to the members of the organization.

The meeting opened with Governor Webber introducing William Gould, recently elected president of the New England Gas Association. Governor Webber stated that it was Mr. Gould who formed the Gas Sales Association and from its early beginning with some thirty odd members present at the first meeting to the attendance of 210. Mr. Gould has not missed a meeting.

President Gould responded with a few brief remarks stating that the executives of New England recognizing the importance of the commercial man in their industry had elected a commercial man as president of the New England Gas Association.

Industry Must Put Aside Alibis

Mr. Gould stated that the industry must put aside the making of alibis and excuses for poor sales results. The year 1927 should be the best in sales of gas and it is up to the commercial men to make this possible through the sales of gas appliances. All over the country stated Mr. Gould people are recognizing the importance of the commercial end of the gas business.

Governor Webber next introduced Mr. A. H. Scott of New Britain, Conn., president of the Operating Division of the New England Gas Association. Mr. Scott stated that it gave him considerable pleasure to attend the meeting of the Gas Sales Division and predicted that the year 1927 would be the best for the gas industry as far as gas output is concerned.

Mr. Carter, chairman of the special committee appointed for the publishing of a book of suggestions and recommendations for gas appliances in the home stated that these were ready for distribution. A few of the companies have sent in orders for several hundred copies. The cost of the booklet is 20 cents per copy, which merely covers the cost of printing. The purpose of the booklet is to bring before the new home builder the convenience of gas appliances in the home.

The musical feature of the evening consisted of baritone solos by Thomas F. Wall of the Woburn Gas Light Company assisted by Clayton Kimball at the piano.

Governor Webber stated that the April meeting of the association would be addressed by DeWitt Clinton, treasurer of the Worcester Gas Light Company and the annual meeting, which is held in May, would be in the hands of the past governors of the association.

Governor Webber expressed his appreciation of the large attendance and stated that it was very gratifying to the officers of the association to see so many gas men present. It proves that the subject of gas water heating is of great importance to the gas industry.

The speaker of the evening, Jesse L. Johnson, brought out many new ideas and suggestions on how to increase gas consumption through the use of gas water heaters. Mr. Johnson's paper will appear in a future issue of the American Gas Journal.

Causes for Summer Depression

In the discussion of Mr. Johnson's paper, W. K. Evanson, chairman of the American Gas Association Large Volume Water Heating Committee, said in part:

"As we view our business in its entirety, we see a depression in the summer months. As we analyze our business we see that this depression is caused by two things—the falling off of the water heating load and the lack of ambition on the part of the housewife to do cooking on the hottest days. A chart was made by the Fall River Gas Light Company, showing the relationship between the daily gas send-out and the daily temperature. It was found that the send-out went up as the temperature went down during the winter months. In the spring and fall there was no apparent relationship but in the summer the same condition was observed. In other words, no cooking was done on the hottest days. If a gas water heater were a part of every home, the relation of the send-out to the temperature would, in the summer months, be reversed, for the public at large is becoming more and more educated to a warm or lukewarm bath as a means of obtaining comfort during our hot and humid season.

"What do we know about gas water heating? How many of you can give me an average figure for domestic use showing the cubic feet of gas required per gallon of water? Some of you may be able to give me such a figure on an individual large industrial installation, but I doubt if many of you have taken the trouble to install water meters on the cold water inlet to your storage systems or automatic water heaters. I will frankly admit that until recently I have not done this thing, but this work is now under way on typical installations in Fall River.

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How Can the Unprofitable Customer Be Made Profitable?*

Bearing of service charge on the question

H. A. Stockton

President, County Gas Company, Atlantic Highlands, N. J.

I APPROACH my subject with considerable timidity, not because I do not think I have a pretty definite idea as to "How an unprofitable customer can be made profitable," but because of the wide difference of opinion among the executives of the industry, as to the proper methods to be used in converting the unprofitable customer to a profitable one. Again, some logical answer to this bugbear must be presented in such manner that an intelligent discussion of the question may be had.

It is admitted that we all have a number of unprofitable customers. Next, we perhaps feel that there is some means of making these unprofitable customers profitable. This might be subject to some discussion. Next, the question arises how to make them profitable. I will endeavor to answer this in as much detail as possible, without extending my paper to unnecessary length.

It is also true that there are many kinds of unprofitable customers, and for the purpose of this paper I will divide them in two general classes. First: the permanent resident connected to the mains of the company who uses so little of the service throughout one or more seasons of the year that the revenue derived from him by the company is not sufficient to place him in the profitable class. Second: the seasonal resident, who, while connected to the mains of the company throughout the entire year, only occupies his seasonal residence three months of the year and spends the remainder of the time elsewhere.

More Concerned With Seasonal Resident

While the first customer presents some problem to the management of the company, I am inclined to believe that the problem is not so complex as that of the latter, because the unprofitable elements involved in the latter customer consist not only of the factors peculiar to themselves, but include also all of the factors entering into the first class. Partly because I am more familiar with customers of the second class I am going to confine myself largely to that class, and I know that some of the gentlemen selected for the discussion of this paper are vitally concerned with the same problem.

How to increase the company's revenue from customers of the first class seems to me to be largely an ordinary, intensive sales effort on the part of the New Business Department. It is true, however, that in the case of a small percentage of customers of the first class that no sales effort would greatly increase the revenue of the company. I am inclined to think, however, that a study should be made of the consumers' ledgers to determine the number of customers in this particular class. If this study discloses an alarming percentage of customers of this class, every effort should be made by the New Business Department through personal contact with the individuals falling in that class to sell "Commodity." After failing in this effort it would then appear that some form of a minimum monthly charge might be made effective. It would then be the duty of the Publicity and New Business Department to sell both "Readiness to Serve" and "Commodity."

How to increase the company's revenue from customers of the second class, "Seasonal Customers," in my opinion immediately necessitates a revision of the rate schedule. I am led to this conclusion because in my experience the customer is a very good one for the short time he is with you, and while it is true that through some intensive sales effort his revenue to the company might be increased slightly, it is an utter impossibility to produce for the company as much income from this class of business in three months of the year as it would obtain from the ordinary customer in a twelve months' period. I, therefore, reiterate that a revision of the rate schedule is inseparably linked to this particular class of customer. I do not intend to delve into all of the intricacies of rate schedule construction, but will confine my remarks literally to the answer of the subject assigned to me and let the discussion following the paper lead if necessary to rate schedule construction.

Service Charge Is the Answer

As a matter of fact, I can answer the question to my own satisfaction in a few words, namely: "Service charge, or some modification of it." Perhaps when I say this, some of the gentlemen would feel entirely satisfied if I answered the question in a few words and ended my paper. For some strange reason, strange to me, at least, when the words service charge are mentioned to utility executives, a look of horror is immediately noticed on their countenances, and another expression, which I might designate as being closely akin to that expression is the story about "The banker with the kindly and sympathetic look in his glass eye." My hobby for the past ten years has been selling the service charge to the customer, and I wish to say here that while in some cases the manager's most difficult problem is to sell service charge to his board of directors, it has been my good fortune to have the whole-hearted and unanimous support of my directors. This has, of course, enabled me to spend my available time selling the service charge to the customer.

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* Presented at the annual mid-year meeting of the New Jersey Gas Association, Trenton, N. J., January 28, 1927.

It is an acknowledged fact that before a gas utility can compete with other forms of fuel, that some fundamental change must take place in the general rate structure, and it would seem to me that, viewed from the standpoint of simplicity, that segregation of the operating costs into two or more parts and allocating these costs that are more or less fixed in nature —regardless of the amount of gas produced or sold— equally among customers, who are equally responsible for them, is no difficult matter.

Assuming that some form of fixed charge, call it what you may, is the final possibility of increasing revenue from this class of customer, it then becomes necessary to determine the fixed cost applicable to the customers in question. Considerable sales effort should and must be made before revising the rate schedule. I mean by this a real effort to sell "Readiness to Serve." Needless to say this will require a very much higher type of salesmanship than that of the ordinary salesman selling an appliance or commodity.

Reason for Unpopularity of Service Charge

I believe that the reason for the unpopularity of the service charge on the part of the public is due to the lack of selling ability of the companies and their employees, or, if not lack of selling ability, a total misconception of the fundamental reason for the charge. I further believe that the reason a number of the companies have eliminated the service charge from their rate schedules is the unparalleled prosperity of the industry during the past few years.

During this period, business and resulting profits have multiplied with less effort per unit of sales than ever before. By reason of better merchandising methods, certain profits have accrued to the companies, so rapidly and in such volume, that we have partially lost sight of the unprofitable customer. During this self-satisfying and selfish period we have been content to follow the lines of least resistance, and those of us fortunate enough to have a two-part rate schedule have at the first signs of discontent on the part of the public, immediately filed revised schedules, eliminating the service charge and thereby penalizing 60 or 80 per cent of our customers, to the extent of the return on invested capital necessary to render service to the remaining 20 or 40 per cent during the peak load season only.

We have, in a number of actual cases, too readily and with too little real thought, eliminated service charges from our rate schedules, rather than redouble our sales, educational and public relations efforts. We have failed to assume our responsibility to 60 or 80 per cent of our customers. Each company eliminating the service charge from its rate schedule has doubled the resistance to service charge for its neighboring company.

Periods of Temporary Depression

It is logical to assume that the destiny of our industry will be linked very closely with the trend

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BOOTH AT INDUSTRIAL EXPOSITION ATTRACTS ATTENTION

The Northampton Gas Light Company had a very attractive booth at the Industrial Exposition held in Northampton February 21-24. All the local industries were represented and the exposition proved to be a big advertising feature for the industries and the city. The Northampton Gas Light Company's office and plant is located near the exposition building, so invitations were given out at the gas company's booth to the people attending, inviting them to visit the gas plant and salesroom. Coffee and toast were served at the salesroom and many sales resulted from this contact.

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SATURATION POINT IN USE OF GAS NOT NEAR, REPORT SAYS

Convincing proof that the gas companies of America fear no saturation point in the use of gas for household use, even though 52,000,000 persons use gas service daily, is revealed in figures made public by the General Federation of Women's Clubs as the result of a survey which covered nearly 8,000,000 homes in 2,228 communities, representing 48 states and the District of Columbia.

Although approximately 96 per cent of the communities with populations of from 10,000 to 25,000 have gas plants, the Federation states that only 51 per cent of the homes in such communities are using gas for cooking and only 22 per cent are using gas for water heating.

Of the towns with 25,000 to 50,000 population, 99 per cent of which have gas plants, gas ranges are in but 60 per cent of the homes and water heaters in but 26 per cent.

In towns of 50,000 to 100,000 population, all of which have gas works, 69 per cent of the homes are equipped with gas ranges and only a third have water heaters.

Even in cities of 100,000 and more population, the Federation finds that less than 80 per cent of the homes are using gas ranges and only one-half are using water heaters.

HOW CAN THE UNPROFITABLE CUSTOMER BE MADE PROFITABLE

(Continued from page 313)

of the economic business cycle. We may expect periods of temporary depression. During the present and immediate past prosperous period, while capital was readily obtainable, we have assumed another grave responsibility, namely: customer ownership of our securities. When the period of depression comes —the time for real concentrated thought—it is true in the case of our company, at least, that some of the real "thinking kind" of customer owners, particularly the business men, are going to insist on a scientific rate schedule, where each class of customer pays that part of the cost of operation applicable to his class. There is some sign of that period now.

More has been written about service charge during the past few months than ever before. If some of you gentlemen doubt my ability to read correctly the sign—why was I asked to prepare this paper? As this period of which I speak draws near, the companies who have so readily eliminated the service charge from their rate schedule will have some difficulty in intelligently discussing with their stockholders and customers the necessity for maintaining existing rates during a period of decreasing commodity costs.

Manner of Selling Service Charge

Now that I have determined, to my own satisfaction, at least, how the "unprofitable customer can be made profitable," and imparted that information to you, and having implied that the success of the service charge depends largely on the selling effort of the Company and its employees, perhaps it is now in order for me to say something about the manner of selling the service charge. The time is too short to detail this to any great extent. Let me say, however, that the essential requisite is personal contact with your public through various civic organizations and otherwise. Train those employees coming in contact with the public to talk intelligently about the matter—give them real information as well as inspiration. Select the employees for this work carefully and give them time to become acquainted with their public.

Nothing arouses the suspicions of the public quicker than a frequent change of employees and executives. I have found that the larger part of objection comes from a very small minority, and from individuals who have some selfish purpose in view. A careful analysis of those people, or groups objecting, will undoubtedly disclose some reason other than service charge for their opposition.

In closing let me say that opposition is greatly in the minority, and you, therefore, have some advantage. I have always taken considerable solace in General Grant's reassuring message to his army just before the Battle of Petersburg, i.e., "Remember, men, the other side is just as scared as you."

Boosting Business With a Spring Sales Campaign

Suggestions and Ideas for the Sales of Various Appliances

Clement White

BEST results are secured by planning the spring sales campaign well in advance of the approach of warm weather. Another important factor to keep in mind is a spring sales campaign isn't necessarily a "price cutting" sale! There is a large potential demand for gas appliances during the spring months, and full advantage is secured from this demand by pushing seasonable goods to the front, and pushing them intensively. It is advisable to remember that in past years the majority of spring sales campaigns, which were planned systematically, were successful. In some instances, failure to make any particular preparation for meeting the spring demand for gas appliances, has resulted in slow trade.

Instead of regarding a spring sales campaign as a routine affair, why not consider it a favorable opportunity for moving the stock? Instead of expecting a little additional business, why not proceed with the ambition to best former records?

Avoid Commonplace Publicity

When planning the spring sales campaign, it is best to keep in mind the fact that many firms are attempting to boost trade at this season. Decide at the start to avoid publicity and displays which are commonplace and mediocre. You have a stock which will attract public notice, provided it is featured systematically.

Consider gas heaters, for example. Now is the time to "clean up" this equipment. Emphasize the desirability of gas heaters for banishing the "chill" which accompanies early spring weather. The adaptability of the gas heater for warming a sick room, bath room, living room, etc., in "quick time," makes it a popular seller for early spring. The small, portable heater is so inexpensive and convenient that it merits special advertising and display. While the gas heater's merits are well known, it's advisable to remind prospects that they will need new heaters for making their homes comfortable when a sudden cold spell catches them without steam heat, or with cold furnaces! With some extra effort, it isn't difficult to "round up" a number of these "last minute" customers. An important essential is to keep them informed regarding your stock of gas heaters.

Newspaper Advertising of Value

Newspaper advertising is of practical value for carrying your sales message. When preparing the "copy," it is important to keep the prospective customer's viewpoint in mind. When advertising a portable gas heater, for instance, emphasize its desirability for use during the early spring, when winter may unexpectedly play a return engagement. Some of your prospective customers may require specific information regarding the heater's economy.

Emphasize the fact that possession of a modern gas heater means instant, controllable heat at the touch of a match. Remind prospects that the gas heater furnishes clean, odorless, convenient heat when they need it! And do not forget to remind prospects that the price of a reliable gas heater is so moderate that its purchase is a wise investment. Practical sales messages of this type will "lure" the trade of "last minute" gas heater customers.

If you have some "last minute" prospects on your lists who "put off" buying gas heaters during the autumn and winter, you may be able to secure their orders during the early spring. A cold, disagreeable spring day, together with a chilly, uncomfortable room, is apt to give a procrastinating prospect the impulse to buy. And if your advertisements have come to his notice, he is likely to visit your sales room. One doesn't need to be a weather shark in order to gauge the possibilities for selling gas heaters during the early spring. It pays to remind prospective customers of the wisdom of preparing for chilly, unpleasant weather!

New Prospects

New prospects have moved into your territory. In the "hurry and worry" incident to settling in their new quarters, they have forgotten to make provision for heating chilly rooms. It's advisable to keep their needs in mind when advertising the spring sale of gas appliances. "Moving time" may bring in many new prospects, and it is advisable to bid for the patronage of newcomers at the first opportunity. When you sell a new customer a gas heater during your spring sale, you may pave the way for a series of profitable orders.

This is the opportune reason to "speed up" the demand for gas ranges. While your spring sale is in progress, gas ranges will attract the attention of many prospective customers, who will consider the advisability of investing in new ranges. This increased interest will have cumulative effect in accelerating gas range sales throughout the spring and summer.

An important essential is to display the ranges so prospective patrons will note the variety of your stock; in fact, distinctive display is a major aid in insuring the success of a spring sales campaign. While an attractive stock exhibit doesn't add to the merit of gas ranges (or other equipment) it assists the prospect to discover points of superiority, which otherwise might be overlooked. Moreover, sightly stock display encourages prospects to investigate the merits of the equipment. So many housewives are interested in gas ranges at this season, that any special effort on the salesman's part to display the stock to best advantage, is certain to produce results.

Original Display Awakens Enthusiasm

It is the fresh, original display which awakens the enthusiasm of housewives. Enthusiasm, by the way, is an important consideration. Many housewives become tired of their old ranges during the winter, and feel a longing for new gas ranges. Other housewives come to the conclusion that they need new gas ranges, so they can cook in comfort throughout the year, and avoid over-heated kitchens during hot weather. The way to make sales to these prospects is to Start Early; otherwise an enterprising competitor may "harvest" their orders. It pays to arouse the enthusiasm of housewives at the start of a spring sales campaign, and proceed with the view of sustaining their interest week after week.

This is readily accomplished through attractive displays, cooking demonstrations, live-wire publicity, personal canvassing, etc. There is a right way to reach the individual prospect. It pays to use a number of sales aids, so a large number of housewives will learn of the feature values offered during your spring sales campaign.

The right way to win the individual prospect's order, is to conduct the spring sales campaign with the definite purpose of creating a desire for modern gas ranges and other equipment. Any sales aid which will assist in accomplishing this object merits careful consideration. Take advertising, for instance. It happens that advertising has received a great deal of attention during recent years. Some dealers underestimate its importance for luring trade, because their publicity is too general. Look over the advertisements in any popular newspaper, and you will note that in many instances their chief theme is cheapness. It happens that the "cut price" sales argument has been used so frequently, that it is of doubtful value for stimulating sales. In fact, the appeal of price is over-worked and merits a rest. In many instances, "cut price" advertisements do not stimulate sales, because the quality appeal is overshadowed by the price argument. No added desire is created. A "cut price" advertisement may boost sales one day; but there is an ever present danger of an abrupt slump in sales during succeeding days.

Emphasizing Service Idea

During the spring sales campaign, it pays to strongly emphasize the service idea in newspaper publicity. Your sales room is an up-to-date headquarters for quality gas appliances, and the desire of your entire organization is to please patrons. The advertisement built around the "service idea" is of maximum value for attracting the class of prospects who buy.

It is a mistake to consider advertising as a medium which is calculated to induce people to buy something they do not need. Advertising which fools the public is never of lasting value. Your paramount idea in advertising gas appliances is to help prospects by offering them honest, specific information regarding the merchandise. The advertisement should convey enough definite information regarding gas ranges, ironing machines, etc., etc., so as to be valuable to housewives in selecting new equipment, and in making up schedules of their household requirements.

An important service you can offer prospective customers in your advertising is to focus their attention on the fact that they cannot afford to dispense with modern gas appliances, and that spring is an excellent season for modernizing their homes.

It pays to give much thought and study to the publicity which is destined to make the spring sales campaign an outstanding success. Consider these factors: Prospective customers do not desire things which they have not pictured to themselves in their minds. They do not desire to possess merchandise which they have not thought about. The right way to create a desire is to visualize it. Advertising is indispensable for creating a desire for merchandise, because it discloses to housewives the need of and desire for gas appliances—a desire that had been latent, and required live wire copy to develop. Without aggressive advertising, you talk only to people already interested in gas appliances. With the assistance of publicity, your message is carried to hundreds of new prospects. And new prospects are a major factor in making the spring sales campaign a success.

Use Newsy Advertising

Many "buying opportunities" will be offered in the newspapers which carry your advertising. This is why it pays to make the copy as specific and interesting as possible. Use newsy advertising; for newsy copy is the best guarantee of maximum reading efficiency. The illustrations in the advertisement attract attention; but it is the printed words which do the selling. And it is the headline which must attract the reader's attention, and cause him to read the advertisement. You need unusually attractive headlines, because the merit of gas appliances justifies extra effort in introducing them to the public. As a rule, the most effective headline is one which gives a synopsis of the advertisement. This means the headline should tell as much of the advertisement's message as possible. Why? Simply because we have become a nation of headline readers. We glance though the pages of a newspaper and notice the headlines. And we seldom read a complete article or advertisement unless the headline interests us. The modern advertisement needs a headline which insures attention from a jaded public.

It pays to make the headlines strong enough to win attention in the face of the other attractions spread over the pages of a newspaper. Words which emphasize value and service are of maximum value in the headline of an advertisement.

When used in combination with attractive window trims, the "live wire" advertisements are of maximum value for keeping the sales room crowded during the course of the spring sales campaign.

Stressing Economy Argument

During the course of the spring sales campaign, it is advisable to keep the "economy argument" in mind. Some prospects are obsessed with the idea that the way to practice economy is to use old, obsolete equipment as long as it will hang together. Demonstration of gas appliances is very effective for overcoming this idea. Your business is to convince the prospect that true economy lies in investing in new gas appliances, which insure long, uninterrupted service.

Suppose the prospect argues that she is using an old range, which gives fairly satisfactory service. Her "economy argument" must be met by focusing her attention on the added economy insured through the use of a modern gas range. Acquaint her with the fact that the gas range will not burn out, and that it is constructed of material which prevents it from rusting out. The non-rusting oven linings, enamel broiler and drip pans, etc., will awaken her interest. Having convinced her that the gas stove is built to last, remind her of its remarkable economy so far as fuel consumption is concerned. Point out its versatile features, which make it the ideal range for modern requirements. Arguments of this nature help move the stock in profitable volume.

You can attract many buyers with the gas heated ironing machine during the course of your spring selling campaign, by demonstrating its value for year-around use, and its special value for ironing clothes during the hot days which are coming.

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LIVE PUBLICITY

NEW CARS FOR OLD
IT'S EASY WHEN YOU DO IT WITH GAS
THIS spring, thanks to Gas Service, the automobile owner of 1926, or even 1925, can blossom forth with a car that is literally as good as new.
Modern Gas equipment, especially designed for garages and service stations, makes this possible in an entirely new sense.
ARE YOU PREPARED? Without hand torches or sand blasting, you can now remove all paint and clean an entire car, inside and out, by a simple, inexpensive Gas-burning appliance, more quickly and thoroughly than has ever been possible before.
You can enamel automobiles in Gas-fired baking ovens, installed by your Gas Company, at a price no greater than a first-class paint job would cost and in about one-third of the time.
MR. SERVICE MAN: We are now talking dollars and cents. Our engineers are ready to advise you, without obligation. During this month only, your Gas Company will hold an exhibit in the Industrial Showroom, 130 East 15th Street, of Immersion Tanks and Auto Cleaning Outfits for garages and automobile paint shops.
Ask Your Gas Company
INDUSTRIAL DIVISION
130 EAST 15th STREET

The Consolidated Gas Company of New York Points the Way to a Very Interesting and Profitable Field for the Industrial Application of Gas.

As The Journal Views It

THE HAPPY MEDIUM

Some years ago, at a convention—one frequently hears a deal of wild and inane talk at conventions—we overheard an engineer of some standing make the remark that you couldn't make a thing too strong. He was lecturing, in a sense, one of the younger members of his organization and went on to say further that he had had this doctrine drilled into him by his predecessor.

As a matter of fact, aside from any economic aspect of the question, we know that it is possible to construct a building with members so massive and weighty that it will perforce collapse by reason of its own inherent bulk. But the quite important phase of the matter is that which concerns the entirely useless expenditure of money over and above that amount which will economically take care of a particular engineering project.

Apart from showing good talking qualities it does not require an exceptional ability to put across a job by the "you cannot make it too strong" method. All one needs is to get the appropriation. Unfortunately there are in evidence some engineers who look too far ahead, to the utter detriment of economy. They lay out a project which will meet their needs for so great a length of time that depreciation taxes, obsolescence, interest charges and the like assume proportions out of all reason. The best that can be said of them is that they at least adequately took care of the situation, but only from a qualitative standpoint.

In this issue will be found an article by Mr. George Wehrle which contains much that is not only worth reading carefully but also constitutes a vital message to the younger engineers in our industry. The latter should keep well in mind, when figuring out some engineering development, that there is one cost figure for the work at hand which is the most economical. It is, to coin a far-fetched expression, the "economic eutectic." Better still it is the happy medium. Proceeding in one direction from this point it will be found that whereas the cost of the work will decrease yet the project will have to be revamped and reinforced at too early a future date. This future revamping will of course make for unnecessary expenditures. On the other hand if the engineer looks too far ahead, makes the job "too strong," the continually accruing charges as indicated become a financial bugbear. We hold that distribution systems involve more careful calculating in order to arrive at the proper solution than any other department of the gas business. And those who can figure out, as each problem arises, just where the "happy medium" is are truly engineers in the broadest sense of the word.

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THE SEASON OF CAMPAIGNS IS UPON US

The merchandising and commercial departments of the various gas companies are now approaching the season of the year when they will lay out ambitious plans and schemes for intensifying their efforts by way of marketing more and better appliances to their customers and prospects. In short campaigns are in the offing.

Most of these annual efforts follow, we take it, a definite line of procedure. The manager lays out his plan of action, decides what appliances he will lay most sales stress upon, accumulates his stock, hires a number of men to canvass the territory and "blazes away." We might say that the proposition is easily and quickly indicated but underlying the whole is a world of study and details that are accurately interpreted only after much cogitation and intelligent thought. The problem is by no means an elementary one, for the good and sufficient reason that the public's mind is hard to fathom.

We beg leave to suggest that salesmen should be selected with more than passing care; these constitute the most important cog in a sales campaign. Approved appliances only should be marketed. Needed loads should be studied and appliances pushed that will augment the same. Publicity, by way of window trim and printed matter, must be of an attractive nature and there should be a legitimate profit for all the work and effort. And lastly the manager should not be downcast if his volume does not equal the previous year's, provided the job is well done and the public brought closer to the company.

INDUSTRIAL GAS LESSONS

IF IT'S DONE WITH HEAT — YOU CAN DO IT BETTER WITH GAS

Lesson No. 162

Oil Gas

While the principal product of the oil gas process is, of course, oil gas, nevertheless there are important by-products recovered in the operations, just as in the coal gas process. These by-products are mainly light oils, tar and lampblack. The light oils and tar are recovered from the gas in the scrubbing and condensing operations, and the lampblack is recovered from washed box connected to the oil gas generator itself. The formation of lampblack is due to the decomposition of the oil hydrocarbons beyond the point where it is desired they should decompose. It is, of course, desirable that as little lampblack as possible be formed, for the essential purpose of the oil gas generator is to make oil gas, but it is impossible to prevent the formation of some lampblack, no matter how carefully the apparatus is operated. The production of lampblack varies from twelve to twenty-four pounds per thousand cubic feet of gas made. The lampblack is collected by the water in the wash box, which water is then drawn off, allowed to settle, the lampblack recovered, being admixed with anthracite screenings, tar and other fuel and used as boiler fuel.

The Dayton Process

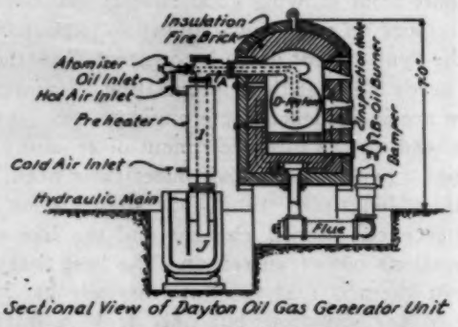
The Dayton process is a special process in which a mixture of oil gas and producer gas is made. The theory of the process is simple. Hydrocarbon oils are blown into the generator in admixture with preheated air. Oil is burned and thus furnishes the heat whereby the remainder of it is cracked and converted into permanent gases. The analysis of the gas made by this process shows that its main ingredient is nitrogen, about 63 per cent, then unsaturated hydrocarbons about 15 per cent, as well as about 6 per cent of carbon dioxide, 7 to 8 per cent of saturated hydrocarbons (methane) and 5 to 6 per cent of carbon monoxide. A small amount of hydrogen and oxygen is also present. The specific gravity of the gas is about 1.02.

The process is continuous and the calorific power of the gas will vary from 300 to 560 B.t.u. per cubic foot depending on the amount of air blown into the generator.

The apparatus is shown in the accompanying illustration and consists of a retort or rather a set of retorts. These are made of cast iron and placed in a furnace chamber. The latter is well insulated and provided with an oil burner, which is shown at B. The mixture of oil and air is introduced through the inlet pipe A, which passes through the outlet pipe for the manufactured gas and extends to the bottom of the retort. The air used in atomizing the oil is made to pass through the heater, shown in the illustration, so as to attain a high temperature and conserve heat.

OIL GAS

OIL GAS IS ALSO MADE BY THE "DAYTON" PROCESS



Sectional View of Dayton Oil Gas Generator Unit

The gas made is a mixture of oil gas and producer gas. The oil is blown into the generator or retort in admixture with preheated air. The retorts are themselves heated by oil, which is burnt in the setting in which the retorts are placed.

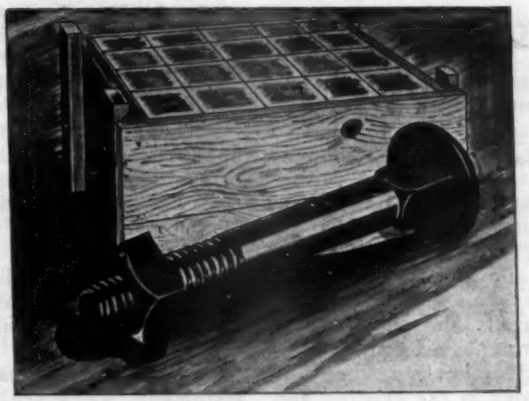
Gas of 300 to 560 B.t.u. per cubic foot is made, according to proportion of air used.

Let's Dress Up Our Advertising

Sir Toby Belch

SEVERAL years back, amid a stifling welter of stale cigar smoke, I sat in on an important discussion at a sales meeting. The company that had called its representatives into conference was about to dig down into its coffers to the tune of a cool one hundred and fifty thousand dollars. This was to be doled out for advertising among several trade papers and popular publications during the following year. Not much of a sum, I will admit, when one thinks in terms of chewing gum, safety razors or garters but a tolerably healthy chunk for the particular article that this factory turned out.

Consequently the advertising agency—and not a mediocre one either—that was to handle the job was in fine feather. That is, the two principal luminaries representing the agency at the conference were all puffed out with pep and high purposes. They were going to plant this lucre with much gusto under a generous layer of printers ink and in due order the golden harvest would roll in. This harvest was portrayed with the accompaniment of a vigorous belaboring of the mahogany directors table with the fists. The two advertising men did inject one proviso—God bless 'em—to the effect that much of the success of the harvest would depend upon the zeal with which the salesmen followed up. Whereupon the president did roundly bethump and bethwack the salesmen with a deal of high-pressure oratory as he practically shouldered them with the entire responsibility. In passing it might be whispered that it was painfully obvious that the two luminaries were something of salesmen themselves. Never have I seen a one hundred and fifty thousand dollar sale put over with such painless despatch.



"It Looks Like a Bolt"

The Advertising Men Had Their Ammunition

The advertising men had their ammunition with them, great corpulent folders of it. Everything was all ready and it merely remained for the trigger to be pulled. Considerable palaver followed the reading of the worded portion of several of the ads by one of the advertising men with a dulcet voice. Then the originals of the illustrations to accompany the wording were handed about; quite nonchalantly, I would hazard. I will confess that I was more interested in the illustrative matter than in the written portion of the ads. I presume this is due to the fact that I have always maintained that the best French chef extant could broil a pheasant in a manner fit for the gods and in the end all and sundry would turn up their noses at it, with the possible exception of some unfortunate ninety days gorged on bread and water, if the selfsame bird were ushered onto the table ensconced in a brand new galvanized washbasin.

The wording of the ads was first rate despite the dulcet voice but the illustrations were just plain terrible. I wonder to this day who executed them. They not only had but little connection with the worded portion but, worst of all, were most abominably drawn. They might have been the work of some correspondence school student laboring through his freshman year. So there was the line-up—illustrations as flat and impotent as a stoop of sour grape juice. If you care to consider the pictorial feature the bait of an ad it was a safe wager to stake a ten dollar bill against a fractured franc that as one would browse through the advertising section of the publication in which the publicity under discussion was contained he would not pause to investigate the same.

Evangelical Tracts

As a boy I can recall the small ten page tracts the evangelical societies used to slide under the front door. These were luridly written and as I remember, dealt with the awful punishment to be meted out to sinners. They were unillustrated but I am inclined to believe that if they had been embellished with cuts such as Dore used to work out for Dante's Inferno they would have been avidly devoured by saved and sinner alike.

Besides the altogether philanthropic process of easing advertising agencies into a state of affluence the function of advertising is to facilitate and, if possible, to increase the volume of business. And it is just this thing that advertising does, that is, good advertising. But what an astonishing lot of bad advertising there is! How naively and serenely does many a company throw away good money in poorly gotten up publicity? I say, advertising, whether in a trade magazine or a popular weekly is primarily indulged in for two reasons; first, to increase business and second, if this first happy stage connot be arrived at, to maintain the volume of business that already obtains. Quite frequently it is difficult to check up on either of these two features of advertising. At all events, at least as regards the matter of holding up the sales, the advertising agency can

always trot out the alibi that if the advertising had not been indulged in the volume of business would have fallen off. This is a lame and moth eaten subterfuge, it is true, but none the less a storm shelter at "harvest time." I repeat, it is an old chestnut I have heard on many occasions.

Personally I am tired of hearing advertising men blatantly pull this wheeze. Further I contend that advertising should increase or facilitate sales or else it should be dispensed with. The money could be better applied toward the founding of a home for aged and incompetent advertising men.

Episode of the Train Ride

A few years ago two of us "pinochled" our way from Wichita Falls to Abilene, Texas. A most discouraging train ride I can avouch. Tiring of cards about three hours from our destination I made a shift to divert the time-passing into some other channel. Turning to my friend, who was fairly well up on the subject of advertising, I asked what he knew about advertising. "Nothing," he advised succinctly. "Neither do I," I allowed. "Then we can talk fluently about the subject," he countered.

I reached for a popular weekly and more or less circumspectly thumbed over the pages of the advertising section. An engrossing occupation when one considers that it was about nine in the evening and we had not had a bite to eat, barring a cake or two of ancient chocolate and a desiccated apple, since eleven-thirty in the morning. Moreover there was the abominable illumination as furnished by a superannuated Pintsch lamp to contend with. I at length passed the paper to my fellow traveler asking that he look over the ads somewhat lackadaisically and pick out what he considered to be the best automobile ad. I cautioned that one of the rules of the game was to not pause and read the subject matter of the ads. Merely a cursory inspection, nothing more. At the end of his perusal he indicated his choice. We had both picked out the same ad. Next we jointly examined this ad from the standpoint of its reading matter and other features. The advertisement undergoing our analysis showed the following:

To begin with it took up the whole of the page and at least half of the sheet was occupied by an illustration. Mark this well; fully half of the ad was composed of illustration entirely devoid of any wording. This cut depicted a young female nattily attired in a jaunty hat with one gauntleted hand grasping the wheel. She was pretty, too, please be informed, attractive to a fault. The picture gave the impression that she was waiting for some one, undoubtedly of the opposite sex, who perchance had just ceased from his efforts in an eight oared shell at New London or, to be entirely impartial, Poughkeepsie. As explained only a portion of the car was depicted and therefore one could not tell of what make it was. It might have been, to the uninformed, a Packard, Ford or what not. However the vehicle enthroning the damsel was indicated at the bottom of the page in bold and unmistakable type. Finally there was a refreshingly short and impressive paragraph explaining one of the high spots of the car. Not of a technical nature but of a simplicity that the veriest numskull would have comprehended.

Appeal of the Ad

The general appeal of the ad in its entirety was such as to create a desire on the part of the reader to own such a vehicle. Boiled down to the consistency of gas-house tar it might be said that the attractiveness of the illustration would cause one to stop and look at the ad, perhaps longingly due to the nattily chapeaued maid, then perforce the name of the car would be seen and presto! the advertisement would have told its story. And when an ad tells its story it is just about all that can be lawfully expected of it.

Although a question I had in mind to ask had been answered after a fashion I could not refrain from propounding the same. "What kind of an ad does the average person like to study and what is the most important feature of an ad?" Below is my friend's answer:

"In my opinion the illustration constitutes the most important feature of an advertisement and in general one likes to look at an ad that has been well illustrated."

I am convinced that this chap is correct in his statement. Let's see, however, whether any additional light can be thrown on his estimate.

Results of Lack of Illustrations

I hold that if all advertisements were devoid of illustrations there would be but few who would take the time to wade through a mass of printed matter extolling the merits and worthwhileness of a particular luxury or necessity. I do not believe that even advertising men themselves would go out of their way to do this. Of course there would be a small minority who, happening to be looking for a certain commodity, would probably keep reading away until their curiosity had been satisfied. But by and large, advertisers would go broke if they depended solely on this class of prospects. As a child I can recall that my hankering for books always ran to those volumes that boasted of one or more well drawn illustrations. Indeed before my folks could ever induce me to wade through Pilgrim's Progress they had to invest in a more or less highly illustrated edition of this work. I think the same line of reasoning applies to the matter of advertising. In turn if an advertisement is greatly enhanced by an illustration it follows that the better the artistic effort in this direction the more appeal the ad will carry, the more of the feature of desire it will raise in the mind of the reader. Therefore since nearly all ads carry illustrations it is patent that the ones with the best illustrations will stand the best chance of being studied and digested. You can write the nicest, most truthful description of a product that you please but if there is not something to strike the person's eye, to arrest his attention, of what will all the finest most highly polished literature avail the advertiser.

Trade and technical magazine advertising are but

the big, raw-boned brothers of that form of publicity which aims to extol the virtues of breakfast food, gas ranges, hair oil, safety pins, foot ease and the like. But my! What an uncouth flabby muscled couple of Calibans! They certainly can stand a bit of a session in some masculine beauty parlor and some heated bouts with the medicine ball will impart a punch to their present puny biceps.

Villainously Stupid

I ask in all fairness is there anything more villainously stupid in the realm of advertising than the lineup of many of the ads in the average trade publication. If the advertisers set out to make their efforts positively miserable I do not believe they could turn in a much more wretched lot of advertising.

What makes, or rather why is trade paper advertising made so uncouth? What makes some of us feel like having at such advertisers with a hot water bag? Nevertheless it is repellant. I mentioned this doleful state of affairs to a maunfacturing friend of mine—he made bolts and nuts—and he turned on me like a parcel of catamounts at bay.

"Is there anything beautiful about a bolt?," he asked with rising ire. The answer is nothing else but no. In turn I will myself ask whether there is anything savoring of the Grecian Bend about a lawn mower? Does the sight of a gas range make you feel like going to the opera or sending for your mother-in-law for a month's stay at your home? Would Titian have enthused over the inspection of an ironing board or a gas fired annealing furnace. I do not believe so. But despite all of these facts what does the great majority of manufacturers do when they desire to advertise a lawn mower? This is an easy one to answer. They generally have a photograph taken of the mower just as it would look in the depths of one's cellar. Ranges, too, are generally shown as is. And there is nothing gorgeous or esthetic about a gas fired cooking apparatus despite the effort of its manufacturer to load it down with a great profusion of nickel plating and enameling.

Industrial Items Can Be Artistically Depicted

Homely articles such as industrial furnaces, bolts, trace chains, cleavers and cast iron pipe can be shown in an attractive manner. But to bring matters to such a pass it will positively require more artistic effort than is now being put forth. Place your ideas in the hands of a sure enough commercial artist and you will be amazed as to how cleverly he can depict a young giant stripped to the waist and with muscles rippling like a song of Hercules plying a rabble bar in the innards of a seething industrial furnace. But merely show a photo of the furnace and you at once knock the support from beneath the imagination. If your artist is clever enough with his high lights and shading he can even sketch the furnace by itself and you will be agreeably surprised as to how attractively the furnace will show up.

Last spring I was fortunate enough to be tendered a ticket to an exhibition of one of our local art schools. The work of the students was truly a delight. None of it bad, much of it good and still a fair percentage really excellent. I wondered why some of the students upon completion of their course didn't get into commercial illustrating—I refer to that branch having to do with depicting some of the homely articles of industry indicated above. Perhaps this is due to the state some of our advertisers have gotten into; a state where they would rather pay fifteen or twenty dollars for a perfect abortion of a sketch instead of investing ten or fifteen more and having the work done by a first rate hand at the game. Or it may be due to the condition whereby the advertising agency retains its own artists at a broken-down troubadour's wage and is content with any kind of a sketch, hoping that the fine wording will put matters across. But I repeat, if the reader will not pause to look at the ad due to the repellent and grotesque nature of the illustration you might as well heave all your fine verbiage into the slop barrel.

Only the other day I looked through several trade papers and technical magazines. These were representative publications with many successful years back of them. From these I was able to pick but a scant advertisement that seemed to have been worked up with any degree of artistic effort. I have endeavored to reproduce this herewith. As one might see, it is a bolt, and I am of the opinion that the artist who sketched the same put a good deal of enthusiasm into his work. It looks like a bolt. More, it looks like the type or make of bolt that one might desire to buy. For those who are a bit inquisitive I will say that the cut as shown represented about fifty per cent of the area of the entire advertisement. I believe that this type of drawing is unusual and, mark you, it is the unusual in advertising that is the real reason for the latter's existence.

The Seat of the Difficulty

The difficulty is that many advertising agencies have not been able to distinguish between what is unusual and what is outlandish and bizarre. They are eternally striving after trick advertising and not being satisfied with the same they fall back on the commonplace and ordinary. Only once in a very elderly tortoise's age does a character such as Sunny Jim of breakfast food fame appear.

Might I ask why some of our big industrial firms don't take a chance with a Parrish or Leyendecker or some other top-notcher just to see what could be done for them. I am inclined to think that they would be astonished at the results. It might be out of order for the trade magazine to be too forward in prying into the question. But the trade magazine could well afford to be on the alert so that if an advertiser happened along and stated that he was not entirely satisfied with the way his advertising was showing up he could be tactfully advised that his illustrations were flat and spineless.

But of a verity trade paper advertising is in somewhat of a state of apathy. It is down low, scraping

(Continued on page 324)

GAS MERCHANDISING

Domestic – Industrial

Ideas for the Man Who Sells

William H. Matlack

APRIL

The month of April is pretty generally taken by the merchandising man as the first month of the year in which to put on an intensive drive to sell new gas ranges. April as a rule is housecleaning month and many replacement sales may be expected at this season. April, too, is a good month to feature incinerators and laundry equipment for the home. One company "out where the West begins" has plans laid to speed-up range sales by conducting baking contests, one of which will be closed on Good Friday, at which time awards will be made to the home bakers of Hot Cross Buns. City and health authorities also go in for "clean-up" weeks in April and the incinerator may well be exploited during these drives to beautify the city.

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PLANS

Who plans the windows, the store arrangement, the advertising, the sales for your organization? Many companies leave this detail to any one who will shoulder the burden, while others make the sales manager responsible for such details. In other fields, those that are a jump ahead of the rest, it is

said that the two men who keep the mill grinding in these days of hand-to-mouth buying are the "plan man" and the "selling man"; in other words, these organizations have two men at the head of the sales department, one who devises plans and one who puts them into motion and sees that they are followed through. The latest company to employ this method is a big food manufacturer and dividends and increased sales indicate that it is the ideal plan.

ARRESTED

Motion in a window display arrested the attention of a woman in a certain city not long ago with the result that she parted with $132.25. It was this way: The gas company in that town had a whole window devoted to the display of a 25-cent visible gas toaster. The center of attraction in the window was a revolv-

ing disc, in the center of which reposed a bright, new toaster and four plates of toast "done in different ways." The woman above mentioned went into the gas office to buy one of the two-bit toasters—and was so impressed with a 1927 all white gas range on display that she boosted her purchase from 25 cents to $132.25. Motion—remember in a window display, arrested her attention.

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CAN YOU IMAGINE THAT?

The other day a gas man who has done a very good merchandising job, continuously, for a number of years, said: "I don't see where some of these gas men get that stuff when they refer to the circulating gas water heater as the lowly tank heater. As I review the sales of this appliance by the gas companies all over the country I find that they just sell the circulating heater and forget it. However, it brings in an added monthly revenue of anywhere from $1.50 to $3.00 a month, gives no grief and is a big factor in educating the home owner to use of gas. I have found that a home manager who has a gas range and a circulating gas water heater is more receptive to the purchase of a laundry stove and a dryer than the one who has some other type of heater. As I view it, we can make all of our meters profitable if we will work along the lines employed by the electric man, that is, of adding a little more here and there; a laundry stove in April, a circulating water heater in June, and a laundry dryer in September, a garage or a room heater in November, etc., etc. Thus we build our load as we render more service—it's the painless way." That is logic.

PROGRESS IN GAS TECHNOLOGY
Domestic and Foreign

COKING PROCESS AND PATH OF TRAVEL OF GASES

IN a partially carbonized coke oven charge there exists a zone of uncarbonized coal separated from a zone of semi-coke by a layer of coal in the plastic stage. As heat penetrates the charge the plastic layer is transformed into semi-coke and a new plastic layer is formed in the succeeding layer of coal. Immediately after charging an oven a considerable positive pressure, increasing towards the sole, exists in all planes of the charge. As the plastic layer advances from the oven wall the pressure within the semi-coke zone formed falls to a slight vacuum, which is fairly uniform throughout the height of the oven. The positive pressure, however, exists on the cooler side of the plastic layer as long as any uncoked coal remains. The temperature in the semi-coke rises from 500 degrees to 1,000 degrees C, according to the duration of its heating.

The uncoked coal remains at 100 degrees C as long as it contains any moisture, which, in the case of coal in the center of a 21-inch oven, is not driven off until eighteen hours after charging. The plastic layer, therefore, is divisional between a zone of high pressure and low temperature, and of low pressure and high temperature. Depending on the nature of the coal in the plastic state, the carbonization in coke ovens is more or less a two-stage process.

Laboratory Tests

Samples of a coal which was being carbonized in ovens on a large scale were distilled up to a temperature of 500 degrees C in the laboratory, and the nature and the distribution of the products were determined. A sample of freshly formed semi-coke was taken from one of the ovens and distilled to 1,000 degrees C, its products being determined and examined. The formation of tar ceases with the plastic state, and no tar was formed by distillation of the semi-coke. The permanent gas is equally distributed, by weight, between the high and low temperature stages, but the relative densities and therefore, volumes in the two cases are very different.

Samples of gas from uncoked coal one hour and twelve hours respectively after charging were both precisely similar to the gas obtained from low temperature distillation of coal in the laboratory, indicating that little or no gas passes from the semi-coke through the plastic layer, which is to be expected from the rise of pressure across the plastic layer in that direction. Some of the low temperature products pass from the plastic layer into the coke, as indicated by the pressure of tar in samples of gas from the coke zone, and also by the high methane and low hydrogen content of the gas passing through the coke as compared with the gas distilled from the freshly formed semi-coke. It is calculated that with a lean gas coal twenty to twenty-six per cent by volume of the permanr gas, eighty per cent of the tar and ten per cent of the ammonia produced pass through the uncoked coal. Ammonia is confined essentially to the coke zone, and is not subject to the influence of the large proportion of moisture in the coal as carbonized in coke ovens.—"Fuel," volume 5, pages 486-509.

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EXAMINATION OF COKING COALS

METHODS of investigating coking coals, such as crucible test, distillation behaviour, coking power, coke density, porosity and friability, are discussed. These methods are suitable for the classification of coals, but do not afford a sufficient explanation of the production of coke in industrial plants. Theories derived from a study of the behavior of coal on crucible carbonization, such as the theory of Fischer, fail partially, for on an industrial scale carbonization conditions are realized which cannot be reproduced in a crucible. In particular the transference of heat in crucible carbonization is much more rapid than in large scale practice.

Investigators have isolated and examined the constituents causing coking and swelling in a series of coals ranging from the geologically young coals through lignitious, bituminous and carbonaceous coal to the geologically oldest coal, anthracite. They have shown by crucible tests that the divergent behavior of coal during carbonization is due to certain properties of their "bitumen." Coals with solid and hard bitumen—sand or sinter coals—give no fused coke, at most producing a sintered or slightly caked coke, while coals with soft and plastic bitumen—caking and swelling coals—give rise to a fused and swollen coke.

The Bitumen

The bitumen consists of two chemically different portions, one of which is solid and the other mobile. The solid oxygenated portion has different temperatures of decomposition for coals of different ages. The greater the age of the coal, the higher the temperature of decomposition of the solid bitumen. If the temperature of decomposition coincides with the plastic state of the coal, a swollen coke is obtained. The solid bitumen is thus responsible for the swelling properties. The soft and plastic bitumen has, on the other hand, nothing to do with the swelling of the coal, but is closely related to its caking power. If extracted coal from which the oily bitumen has been removed is treated with such bitumen, no matter from what coal derived, a non-swollen and well-fused coke can be obtained from it. Hence oily bitumen must impart the coking or agglutinating property of the coal.—"Gas Journal," 1926, page 231.

DIRECT DETERMINATION OF NITROGEN IN GAS

A METHOD and apparatus are described in "Chemiker Zeitung," volume 50, page 860, for the direct determination of nitrogen in illuminating and heating gasses. The apparatus used consists of two Hempel burettes, one of which contains the gas and the other a slight excess of oxygen over that required for combustion. These are connected by a quartz capillary containing palladium which is heated first gently and then more strongly until the volume of the mixed gases becomes constant. The carbon dioxide and oxygen in the burned gas are absorbed by alkaline pyrogallol, any carbon monoxide liberated at this stage being removed in the usual manner. The residual nitrogen is then measured.

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REMOVAL OF SULPHUR FROM GAS

The oxidation of the sulphur contents of coal gas without the preliminary removal of ammonia is attempted, and thus ammonium sulphate formed without the supply of extraneous sulphuric acid. Ammonium-sulphide was quantitatively transformed into a mixture of ammonium sulphate and sulphite at a temperature of 450 to 650 degrees C in the presence of catalysts . The optimum mixture is 650 volumes of air, fifty volumes of hydrogen sulphide and one hundred volumes of ammonia. Alumina, best in the form of a gel, is the most efficient catalyst, but pumice can also be used. Ferric oxide, and chromic oxide are unsuitable because they catalyze the oxidation of ammonia, hydrogen sulphide acting as a promoter to ferric oxide.

The efficiency of the above changes is seriously interfered with by coal gas. The yield was considerably reduced and much contaminated with tar, especially at the lower temperatures; at higher temperatures a green liquid was formed with a strong garlic odor suggesting carbonyl sulphide. Experimental devices described include an apparatus for generation, storage and delivery of pure hydrogen sulphide at constant pressure, a quantitative and rapid absorbent for hydrogen sulphide and a method for the determination of sulphite and thiosulphite in a mixture of the two.—Journal of the Chemical Society, 1926, pages 2983-94.

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WATER HEATER DISPLAYS THAT CATCH THE EYE

THE Central Supply Company, located on the highway between Minneapolis and St. Paul, gets a great deal of valuable publicity from its brilliantly lighted windows. A very effective display called attention to their gas water heaters. The window was hung with black curtains and at either end gas heaters and tanks were displayed. Between them was a large card with a white board, in front of which was the half length cut-out figure of a woman bearing a tea kettle, the sign reading: "Hot Water Without Waiting—Tea Kettles Have Lost Out." On pedestals were gray enamel tanks and Rex heaters. Drapes of dull gold silk, mingled with orange, yellow and white flowers were used to add color to the attractive setting.

Another display had a painted back drop showing a mountain road. In front of it were two cut-out figures in hiking togs. At the other side was a panel showing a modern tiled bath room, and in front of it a tank and gas heater. The floor was covered with green turf and overhead were hung branches of oak foliage. A large card framed in birch bark advised:

AT THE END OF THE TRAIL
—a cool drink and a warm bath.

The hotter, wearier and dustier you are after any summer activity, the more you enjoy a warm bath. Cold water to drink, say the health experts, but for a cleansing, refreshing and really cooling bath—warm water always.

A Summer Essential in Every Home
STORAGE GAS WATER HEATER

Red ribbons ran from the gas heater to a card down front, which announced: "Special Offer for One Month—$5.00 down puts this convenience in your home at once. Balance in monthly payments—18 months to pay."

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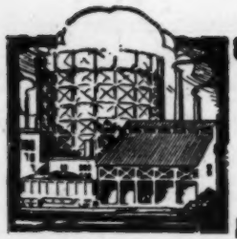
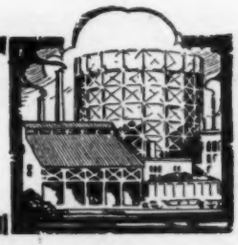
LET'S DRESS UP OUR ADVERTISING

(Continued from page 321)

bottom. Can it be improved? Of a certainty. Get hold of a good commercial artist. Don't be alarmed if he shows a good looking young lady cooking over a gas range in a very attractive kitchen with a pot or two of gayly colored flowers on the window sill. What matters it if not very much of your range is shown so long as the person you want to reach pauses to admire the fair biscuit baker and then to read the subject matter. Or if you will persist in having the range displayed in all its cast iron beauty and unattended why get into touch with some illustrator who knows how to handle his blacks and whites. But in the name of suffering art do something to raise the batting average even if you have to bribe some of the outfielders.



NEWS OF THE GAS INDUSTRY



Sixteenth Anniversary of Southern Counties Gas Company

Santa Ana, Cal.—Recently occurred the sixteenth anniversary of the Southern Counties Gas Company, a thriving gas organization which virtually made its start in this county by acquisition of local gas plants and organizations and it will, no doubt, be interesting and worth while to other gas companies and gas men to consider the progress made by this company in sixteen years.

The company was organized in 1911 by Ferdinand R. Bain with $900,000 capital, and in sixteen years its capital has been increased to $20,000,000.

According to C. E. Rutledge, district manager for the company here, the organization started with a handful of employees, cramped office quarters and only a few miles of pipe line. There were approximately 3,000 consumers at the time the company started.

At the present time the company employs 600 men and women with a construction crew of 300 workers. There are now 28 local gas offices in five counties. A network of 2,195 miles of transmission, distribution and lateral mains and pipe lines connect the 111,945 consumers with all of the substantial gas producing oil fields in Southern California, including Huntington Beach, Signal Hill, Santa Fe Springs, Montebello, Richfield, Inglewood and the newly developed Ventura fields.

Recounting some of the history connected with this fast growing company, Mr. Rutledge said:

"The company has acquired the entire property of the Piedmont Gas Company, Covina Gas Company and Orange County Gas Company and the gas plants and distributing systems of the Southern California Edison Company at Santa Ana and Whittier. In 1916 the company acquired the properties of the Long Beach Consolidated Gas Company and the gas properties of the Southern California Edison Company located in the Santa Monica Bay region and also the Pomona district. In 1919 the company added the properties of the Ontario-Uplands Gas Company, also the system of the Edison Company at Santa Barbara and Montecito and the gas properties located in Ventura county. In 1922 the company annexed the municipal gas distributing system of the city of Newport Beach, thus supplying 56 cities and towns in Los Angeles, San Bernardino, Ventura, Santa Barbara and Orange counties.

"The business field of the company comprises practically all of the suburban territory adjacent to Los Angeles, with the exception of Pasadena, Glendale and Redondo. Of the above mentioned properties during 1924 the Southern Counties Gas Company sold to the city of Long Beach all of the gas distributing system, holders, equipment and real estate within the city limits of Long Beach, and is now wholesaling to that city large quantities of gas, which the municipality distributes."

* * *

Empire Gas & Electric Co. Plans to Lay Pipe on Ice

Rochester, N. Y.—Efforts are being made by the Empire Gas and Electric Company of Geneva to complete an eighteen-inch gas main across the foot of Cayuga Lake by laying the pipe on the ice. The pipe is 6,000 feet in length and is part of the new service to be given Auburn from Geneva. Engineers in charge say considerable expense will be saved if the pipe can be completed on the ice and allowed to sink as the ice melts. Otherwise the work would have to be done by means of barges.

Mr. Elton Brown Given Testimonial Dinner By Brooklyn Union Gas Co.

Brooklyn.—Honored as a faithful executive for thirty years and hailed as a "prince of good fellows," M. Elton Brown, superintendent of the Brooklyn Union Gas Company and its subsidiary companies was the guest of honor at a testimonial dinner at Oetjen's, Church and Flatbush Avenues, recently.

On behalf of his fellow executives and officials of all branches of the public utility in Brooklyn and Queens, Brown was presented a handsome traveling bag. Walter Hicks, veteran of the force and connected with the Nassau branch, made the presentation.

The guest of honor followed in his father's footsteps in the employ of the gas company. His father was connected with the company for a quarter of a century, it was announced.

George M. Kirchmer, genial general claim agent, proved a winner in the role of toastmaster. He did not allow the dinner to lag for a moment; amateur and professional talent added to the affair. Clifford E. Paige, vice-president, made the principal address, lauding the splendid spirit shown by the guest of honor in his important post and prophesying an era of greater prosperity. Thomas Payne, auditor, also spoke.

Mingling with the other 175 "boys" present were these officials: H. E. McGowan, J. T. White, Herbert Wellington, M. O. Davis and John Blanchfield. The only outside guest and speaker was the Rev. Dr. Charles William Roeder, pastor of Flatlands Dutch Reformed Church, who paid a tribute to the guest of the evening and to the high calibre of the men entrusted with the responsibilities of the corporation.

Scope of Industrial Gas Course at M. I. T. to Be Broadened

The New England Gas Association has been the sponsor to a course in industrial gas at the M. I. T. for the past several years. This course has been of two weeks' duration and has been largely for the benefit of New England industrial men. The A. G. A., on the other hand, has been sponsor to a course for the last two years stressing the sales and economic aspect of the industrial gas business. At a recent meeting at which representatives of the New England Gas Association and the A. G. A. got together, it was decided that in the future M. I. T. would treat the subject from a strictly technical and academic standpoint, while A. G. A. would treat the subject from the sales and economic standpoint at their course in New York City.

It was also decided that a greater effort be made this year to interest all industrial gas men in the East in M. I. T. course and not confine it so much to New England as has been done in the past. The fine facilities of M. I. T. offer a wonderful opportunity for all industrial gas men of the East to get training along these lines which should not be overlooked. It is contemplated that the two weeks' course in industrial gas principles will be given in the early summer, details of which will soon be available. The gas companies will do well to give every consideration to having their industrial men attend this course at M. I. T.

* * *

Death of George W. Banks of Rochester Company

Rochester.—George W. Banks, for more than forty years identified with the Rochester Gas and Electric Corporation, died Saturday, February 26th, in this city. He was seventy-two years old. Mr. Banks had been storekeeper at the yards of the company in Front Street for many years. The funeral was held Monday, February 28th with burial at Riverside Cemetery, Rochester.

Southern Gas Association Plans for Convention

Atlanta, Ga.—Twenty years of progress will be celebrated by the Southern Gas Association at its first Home Coming Convention to be held here April 19, 20 and 21. More than 300 gas executives from all parts of the south are expected to attend.

The association was formed in Atlanta in 1907, and plans to make the first Home Coming meet the greatest convention yet held have been perfected.

A. E. Merchant, President Southern Gas Association

Organized with only a few members located in a few Southern states, the organization has expanded until it embraces states extending from Maryland to Louisiana, and numbers nearly four hundred on its membership roster.

The gas industry in the south has taken rapid forward strides in the past few years, consumption increasing more than forty per cent during the past five years The use of gas in the industrial field will be one of the main topics for discussion at the Home Coming convention, and some important disclosures for new uses for gas are expected to be made.

One of the main features of the Home Coming convention will be the re-enactment of the scenes in Atlanta twenty years ago when the association was organized. Some of the original charter members will be in attendance.

COKE AND GAS FILM NOW BEING TAKEN

Will Be Used to Secure More Industries Here

Chattanooga, Tenn.—Motion pictures of the Chattanooga Coke and Gas Company plant are now being taken and will be given national distribution, according to announcement by Dr. T. L. Roberts, director of welfare and public relations of the Tennessee Products Company, who is now in the city. Twelve hundred feet of film of the local plant as well as the other properties of the Tennessee Products Corporation will be taken.

The completed film will be shown by representatives of the company and a print will be supplied to the Kodascope library maintained by Eastman Kodak Company for distribution. The Kodascope library film will be reduced to the proper size for projection by the new outfits being marketed for home and organization use by the Eastman Company.

The picture will be made as interesting as possible, a dual purpose being kept in mind in its preparation; that is to show the possibilities for future development in Tennessee through showing something of the present development and also to present the romance of the Tennessee Products Corporation.

Dr. Roberts states that the picture will be used to advertise the section in a movement to secure more industries for Tennessee. He believes that the prospects are exceptionally bright for the bringing of new industries. In addition to the chambers of commerce in the various cities the utilities of Tennessee are doing considerable booster advertising.

* * *

Gas Hits Business of Coal Dealers

Gas is making heavy inroads into the business formerly held by the anthracite dealers, Hirman Blauvelt, vice-president of the Comfort Lumber Company, of Hackensack, N. J., asserted yesterday in an address at the annual meeting of the New York State Coal Merchants' Association at the Hotel Pennsylvania.

He said many of the contractors in the neighborhood of his business were erecting new houses with gas equipment instead of the old furnaces.

Advantages of Reintjes Flexible Arch Tile

A flexible arch tile enabling more economical and much easier arch construction and maintenance created considerable comment upon being displayed at the Chicago Power Show.

The new patented Reintjes Flexible Arch Tile forms its own arch, requiring no temporary arch centres or skewbacks. No iron or steel required either. Only two shapes of tile are needed regardless of thickness of walls or the varying width of span, or whether the door jambs are square or bevelled. This eliminates the need for several styles needed heretofore.

Reintjes Arch Tile

Another feature of the Reintjes Flexible Arch Tile is that no leveling is required as is necessary with sprung arches. The units remain level with adjacent brickwork without any leveling medium. Each step up is equal to a brick course. The arch is built up in sections the width of one brick course.

The tapered key of Reintjes Flexible Arch Tile facilitates repairs. Replacement arches can be driven to a tight fit without disturbing overhead brickwork. The interior section of the arch can be repaired without interfering with the remaining sections.

Reintjes Arch Tile is ideal to improve arch construction in firing doors, observation doors, relieving arches of side walls, Chicago combustion arches, rear arches H. R. T. boilers, roof arches for any type of furnace, bridge walls with or without waterback, roofs of gas flues, etc. In fact, Reintjes Arch Tile is very flexible in its use, serving practically every arch purpose.

This patented arch tile is being marketed by the George P. Reintjes Co., 2517-19 Jefferson Street, Kansas City, Mo. Additional information will be gladly given upon request.

* * *

Convention Calendar

April

4-5—American Gas Association. Distribution Conference of Technical Section, Baltimore, Md.

6—Pennsylvania Gas Association. Annual meeting, Bellevue-Stratford Hotel, Philadelphia, Pa. G. L. Cullen, secretary-treasurer, Harrisburg, Pa.

7-8—Eastern States Gas Conference. Annual meeting, Bellevue-Stratford Hotel, Philadelphia, Pa. J. Calhoun Smith, secretary, Reading, Pa.

7-8—New Jersey Gas Association. Annual meeting, Bellevue-Stratford Hotel, Philadelphia, Pa. Louis Stoker, secretary, Newark, N. J.

19-22—Southern Gas Association. Annual meeting, Biltmore Hotel, Atlanta, Ga. J. P. Connolly, secretary, 141 Meeting Street, Charleston, S. C.

20-22—Midwest Gas Association. Annual convention, The St. Paul, St. Paul, Minn. H. R. Sterrett, secretary, 551 Seventh Street, Des Moines, Iowa.

26-29—Southwestern Public Service Association. Annual meeting, New Orleans, La. E. N. Willis, secretary, 403 Slaughter Bldg., Dallas, Texas.

Detroit City Gas Co. Orders Dump Trucks

The Detroit City Gas Company has placed an order with the General Motors Truck Company, Pontiac, Mich., for four five-ton GMC Big Brute trucks with dump bodies, which will be delivered at an early date. This order is a part of the company's program to meet the expanding demands for service.

GAS IS ASSURED TO GLASTONBURY

Service to Be Available July 1 Hartford Company Says

Hartford, Conn.—Gas by July 1 is assured. The work of installing the service main will be started by March 15, unless unexpected cold weather occurs, Ernest E. Eysenbach, vice-president and general manager of the Hartford City Gas Lighting Company, announced. The work will be pushed as fast as possible, he said, and the trench-digging machine used wherever possible.

The mains will be laid on Main Street to station 40, all of Naubuc Avenue and Main Street, some distance on Hebron Avenue, and on all cross streets in the section named and such side streets as patronage will warrant.

Following the first installation additions will be made to the mains as residents apply in sufficient number.

Though the present number of subscribers is not quite up to the desired 80 per cent. of the families in the above territory, Mr. Eysenbach said the number of families warranted the installation of the service. One large customer will be the Williams Brothers Manufacturing Company on Naubuc Avenue which will use the gas in their manufacture of silverware.

* * *

Central Hudson Gas and Electric Company Makes Application to Extend Service

Albany.—In order to provide residents of the towns of Newburgh, Orange county, and Ulster, Ulster county, with gas service, application was made last week to the Public Service Commission by the Central Hudson Gas and Electric Company of Poughkeepsie, for the necessary state authority to extend its gas and electric lines in the townships as stated under the terms of consents granted by the town boards of the three towns.

Extension of service into the three towns is at the request of residents who want gas and electricity for lighting and power purposes.

Equitable Meter & Manufacturing Co. Purchases Assets of Pittsburgh Meter Company

The Equitable Meter and Manufacturing Company has recently changed its name to the Pittsburgh Equitable Meter Company and has also purchased the assets of the Pittsburgh Meter Company. The two plants will be operated and all products manufactured by both companies will be continued.

Both the Pittsburgh Meter Company and the Equitable Meter Company have been in existence for more than thirty years, and during that time both have been engaged in the manufacture of gas meters. The Equitable Meter Company had also become one of the largest manufacturers of gas regulators, while the Pittsburgh Meter Company had become one of the largest manufacturers of water meters.

It is interesting to note that both companies were originally incorporated at the time natural gas first came into use for domestic purposes. Mr. George Westinghouse was living in Homewood, which is a suburb of Pittsburgh, and he is said to have been the first individual to make use of natural gas in his household. Mr. Westinghouse drilled in a gas well on his own property and proved it was possible to use natural gas for domestic purposes; with his usual inventive genius, he proceeded to develop regulating and measuring devices.

Both plants are located within a few hundred yards of the site of the old Westinghouse home, and it can be truly said that their inception and progress have been coincidental with the domestic use of natural gas.

The original Equitable Meter Company became the Equitable Meter and Manufacturing Company in November, 1925. During 1926 the volume of business was increased 47½ per cent. over any previous year, and 1927 gives indications of further increases. The Pittsburgh Meter Company has shown steady increases in sales each year for the past ten years. The two companies together will have sales of approximately five million dollars, more than half of which is with the gas industries.

The Pittsburgh Equitable Meter Company maintains warehouses in Pittsburgh, Columbia, South Carolina, Chicago, Kansas City, Tulsa, Dallas and Los Angeles. There are sales offices in all of these cities and also in New York City. Complete lines of water, gas, oil and gasoline meters are carried in all warehouses. The high pressure and low pressure regulators are carried in the warehouses located in natural gas sections, and domestic regulators are carried in all warehouses. The stocks are being built up to take care of the expected increase in business.

* * *

South Side Gets Cheaper Gas

Great Neck, N. Y.—The Nassau and Suffolk Lighting Company, which supplies gas to the southern part of Nassau County, announced that on March 20th it would reduce its rates from $2.05 per 1,000 cubic feet of gas to $1.75. The rate is still 60 cents per 1,000 cubic feet higher than in New York City. The company says it wishes to share with its customers savings effected by new labor devices.

$1.75 per 1,000 is twenty cents lower than the prices charged by the Public Service Corporation of Long Island in this section of Nassau County.

* * *

Gas Company Directors Named

Reading, Pa.—The annual meeting of the stockholders of the Consumers Gas Company was held at the office of the company, 441 Penn Street. President John A. Keppelman was in charge. The election of a board of eight directors constituted the most important business of the meeting. The following were elected: William W. Bodine, F. J. Rutledge, Lewis Lillie, P. H. Gadsden, J. T. Hutchings, John A. Keppelman, W. H. Taylor and Charles T. Nagle.

To the Tune of Gas! Gas! Gas! in Panama

Panama is noted for its gay night life and one of the reasons why it is necessary that Panama should be a mirthful place at night time is the fact that Panama is daily catering to tourist and passengers who are making use of the Panama Canal.

Of the several "wild" night clubs, Charley Cantor's Metropole Hotel is one of the finest.

During the past month this cabaret has been featuring a gas revue with the song Gas! Gas! Gas! as the specialty number. The revue is more or less as follows—one of the leading entertainers comes on the stage and sings the verse of the gas song and the chorus of the song in an ensemble. When the chorus comes to the line "If It Can Be Done With Heat It Can Be Done With Gas," the chorus remains silent while a little lady puts over this slogan. At the finish of the chorus, the girls leave the stage and enter into the dining room and the dance floor mingling with the patrons and sing the chorus in unison. The girls each carry in their hands a miniature Roper toy stove. These toy stoves are distributed by these girls to lady patrons.

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Officers Elected for Guild of Gas Managers at Boston

At the annual meeting of the Guild of Gas Managers, held at Young's Hotel, Boston, Mass., on March 12, 1927, the following officers were elected for the ensuing year: President, F. H. Sargent, Lawrence, Mass.; vice-president, H. N. Cheney, Boston, Mass.; treasurer, W. F. Norton, Nashua, N. H.; secretary, F. E. Drake, Lynn, Mass.

At the annual meeting of the Operating Division of the New England Gas Association, which was held in Worcester, Mass., on Feb. 23rd, the following officers were elected for the ensuing year: Chairman, A. H. Scott, New Britain, Conn.; vice-chairman and secretary, Francis E. Drake, Lynn, Mass.; governors, H. Vittinghof, Boston, Mass.; I. T. Haddock, Cambridge, Mass.; A. S. Hall, Springfield, Mass.